



HANDBOOKS OF
PRACTICAL GARDENING

THE BOOK OF
THE
WINTER GARDEN

BY

D. S. FISH

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HANDBOOKS OF PRACTICAL GARDENING
EDITED BY HARRY ROBERTS

THE BOOK OF THE WINTER GARDEN



WEeping SILVER BIRCH (*BETULA ALBA PENDULA*) AT THE ROYAL BOTANIC GARDENS, EDINBURGH

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THE BOOK OF THE WINTER GARDEN

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D S. FISH

OF THE ROYAL BOTANIC GARDEN
EDINBURGH



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PREFACE

THIS book is written in order to call attention to the principal winter-flowering plants, and also those plants valuable in the open, for their fruit, foliage, or stem effect. After the fall of the autumn leaf, and the waning of the fêted chrysanthemums under glass, many gardens are ill furnished with attractions. This should not be, seeing that good material is obtainable, which, if treated aright, will prove most satisfactory.

Since the reconstruction of the plant houses of the Royal Botanic Garden, Edinburgh, under the direction of Professor Isaac Bayley Balfour, the cultivation of various winter flowering plants has been made a prominent feature, the extent of such "under glass" cultures being curtailed only by the available space, limited, owing to the housing of a large representative collection of plants.

It is unnecessary to include matter relating to the winter supply of vegetables and fruits, for these are dealt with in several of the Handbooks of this series.

D. S. F.

EDINBURGH.

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(From the Collection of the Royal Botanic Garden, Edinburgh)

THE BOOK OF THE WINTER GARDEN

INTRODUCTION

MANY of the beautiful shrubs now available for planters are as effective during winter as in summer. Our climate on the whole suits these plants well, and its variableness, according to locality, is partly responsible for that delightful individuality which is so conspicuous a feature of British gardens. These islands, however, lie too far north to generally permit of the open air growth of palms and cordylines, so characteristic a feature in the gardens of the Mediterranean region, and whose charms we would like to add to a landscape already varied. Their place is under sunnier skies, but by the aid of a number of bamboos and several other plants we can at least approach some of the peculiar features of sub-tropical vegetation.

Our severest winters do not cause the glossy-leaved Mahonia to cast its foliage, and linger on the verge of death, as happens in the gardens of Central Russia, while the varieties of Pontic rhododendron, that have to be carefully protected with reed mats, etc., through the winter of Northern Hungary and other portions of Central Europe, here live happily through cold, hard frosts only causing a drooping of the leaves. It is known, however, that low temperature alone is not the chief evil that plants have to withstand. Cold winds and periods of sunshine, accompanied by sharp frosts, try plants of

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warmer countries severely. Yet the very changeableness of weather is sufficient reason alone why more attention should be given to "winter effects." Did snow lie thick the winter through, there would be less need for the introduction in plantings of the beautiful and small berried shrubs, and those possessing other attractions in the season of garden rest.

Many well-known evergreens are not likely to be ousted from their position, for they are quick growers and valuable for affording shelter for plants less hardy.

A few plants—the majority from sub-alpine regions—flower in the open during the earliest months of the year. Such subjects as Christmas roses, snowdrops, and winter aconites are old favourites. The blue *Anemone blanda*, the rosy-flowered heath (*Erica carnea*, etc.), and several species and hybrids of *Saxifraga*, are beautiful early flowering plants too little known. Some, as the crocuses and irises, are brilliant and varied in their colouring, but require sheltered sites for their January and after blossoms, lest these are torn by winds.

Not only should these and others be planted outside, but quantities should go into pots for greenhouse flowers.

As the fascination of gardening lies in its connection with living organisms, it is not difficult to understand why tender winter flowering plants that *live fast*, or are capable of being raised from seed or shoot to a flowering state within a single year, should have much attention shown them. The raising of the Socotran race of begonias, of which to-day Gloire de Lorraine is a good type, the improvement of the Chinese primroses, fragrant both in flower and leaf, the enlargement of the *Cyclamen persicum*, have given, with other improvements, an impetus to small cultures. For these and similar plants may be reared to an equal pitch of perfection by the owner of a few square feet of grass, as by the gardener and staff of 10,000 feet. And in this respect they

differ from the hard wooded shrubs, so popular in the earlier Victorian days, for fine specimens of such can by no means be raised within a year, and professional labour and extensive houses went as a rule hand in hand with the better results.

For cut flowers, many plants are available. The brightest crimsons and scarlets, and the purest whites, are often wisely chosen where a choice from many varieties is to be had. The profusion of anemones, paper white narcissus, mimosa, violets, etc. that arrive in this country from the French markets naturally turns the small grower, with a little plant-house, to devote it to small pot material in which the flowers are useful on the plant.

The number of plants from which winter flowers may be produced is indefinite. Very many subjects that one sees before and after the dog-days, may also be had in the dark days, if the grower has only space and heat sufficient. Exceptions are certain subjects that require for flowering a greater degree of light than is available in our winter. Artificial light is as yet practically unavailable, but heat is, and fortunately the many plants chiefly require the latter to develop their flowering buds.

It would, however, be a waste both of time and space to grow some plants for winter flowers. As space under glass soon becomes filled up, preference is given to plants that either produce a long succession of flowers, as in the case of several begonias, the Javanese rhododendrons, *Cyclamen*, *Primula sinensis*, *calanthes*, etc., or those producing individual long lasting flowers, as cypripediums and various other orchids. Nowadays the word *retardation* is used in reference to the roots, bulbs, etc., of hardy spring flowering plants that from late winter to autumn are subjected to a low temperature. Released from torpor by moisture and greenhouse heat, flowers

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that normally appear in spring are produced at a time when they are considered far more valuable—in winter. Retardation is often effected by means other than that of the refrigerator, for the stopping and pinching of the summer growth of bouvardias and many other plants are methods practised to prevent the appearance of flowers at too early a date. Such treatment at the same time also increases the number of shoots. Thus strength is gained and flowers retarded until such a time that the grower thinks fit.

OF THE CHIEF WINTER BERRIED TREES AND SHRUBS

HOLLY and mistletoe are no longer the only berries in vogue during winter. Everyone wishes more, not only for cutting, but glowing upon trees "when gloomy winter has put forth his squalid countenance." However, by the end of the calendar autumn, often indeed many weeks before that end, a great number of the year's attractive fruits have disappeared, owing to natural decay, and also to birds. Berries that they pass by are often those most easily injured by frost; thus winter fruited plants are scarce. In small gardens it may be worth while to feed birds to save the berries. This way is not always effective.

THE FIRE-THORN

(*Crataegus Pyracantha*) is mostly seen trained to a sunny wall, a site that offers it protection and induces fertility. Plant carefully in March and September: they are best procured in pots. Sometimes, notwithstanding pruning of roots and stem, and the fact that the plants occupy sunny walls, little or no fruit is produced. In such cases it may be assumed that the plant is a worthless seedling, for this fire-thorn, like the pear and every other fruit, varies in productiveness when seed-raised. It is a wise plan to procure plants grafted on the quince, the scions being taken from well fruited plants. The branches of the shrub

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should be thinned out in March (if needful), leaving a layer of shoots, which should be tied or nailed in just thick enough to hide the wall. Many years elapsing before a small plant covers a house front, or other large space, other plants quicker in growth, such as Virginian creeper or ivies, may be placed between and run up to cover the upper space, always taking care to secure headway for the advancing thorn. The red berries, borne in clusters, are very bright, and being firm, are long lasting, "always providing," as an old writer sagely remarked, "that they be not eaten up by birds." The variety *Lelandi* fruits when quite small, and is recommended for its orange berries, while those of the variety *crenulata* are yellow.

DECIDUOUS THORNS

with less permanent fruits are: the cockspur (*Crataegus Crus Galli*), scarlet, *C. coccinea*, and *C. tanacetifolia*, with large yellow edible haws, approaching in appearance the crabs, of which there are also several. They, however, seldom last far into the winter. These deciduous thorns are small trees for the open.

COTONASTERS

are very serviceable. *C. thymifolia*, *C. congesta*, and *C. microphylla*, with small leaves and pea-like scarlet berries, plentifully produced on the rigid branches, are capital evergreens for clothing low walls and rockwork. The strangely spreading *C. horizontalis* is not evergreen, and the berries are soon demolished by birds, as are also those of the taller tree species, such as *C. frigida* and *C. Simonsii*. *C. pannosa* is as yet little known in this country. I have seen it abundantly berried in France. *C. rotundifolia*, growing only 3 or 4 feet high, with

CHIEF BERRIED TREES AND SHRUBS 7

scarlet fruits, and the freely orange-berried *C. angustifolia* are probably the best all round species for winter.

PERNETTYAS

The fruit is produced on plants even a few inches high, and remains through the winter uninjured by considerable frosts. Pernettyas are supposed to like a peaty or vegetable soil and a sunny position, but are oft seen well berried in clayey soils. In shade they grow freely, but do not fruit well. A few spadefuls of peat put around their roots when planting proves satisfactory. The plants lift easily, even when 3 feet or more in height, as the roots carry soil well. Thus immediate effects may be obtained. The myriads of small bell-shaped summer flowers give way to the equally numerous pea-sized berries, and these vary in colour from dark red to white, according to variety. The white and light pink are very attractive; the darkest colours are rather dull.

BRIGHT ORANGE BERRIES

are borne in abundance by the sea buckthorn (*Hippophae rhamnoides*), even on plants little more than 12 inches in height. Like the tamarisk, this native shrub sometimes grows within reach of the sea spray, the roots going deeply in sand and shingle. Thus in the gardens it likes open spots and poor soil. Birds do not care for the bright berries, but frost bleaches them. The male and female flowers being produced on separate plants, the two sexes must be intermixed when planting, although one male to eight of the fruit bearers is sufficient. Most of the seedlings turning out male plants, the fruiting ones should be layered. A planting of two sexes is also required with

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AUCUBAS

Aucuba japonica maculata was first known in Britain as a hothouse plant. The varieties *macrophylla* and *viridis* are male, and *maculata* and *vera dentata* and *longifolia* female; the last two being plain green-leaved forms, display the red berries to the best advantage. In some gardens the male flowers often before the female, and unless the powdery pollen is collected in dry papers and dusted with a soft camel-hair brush on the females when they open, no berries will be produced. Or graft male shoots on to the female plants. The berries usually remain green through autumn, colouring after the turn of the year.

YELLOW BERRIED HOLLIES

are much sought after when their whereabouts are known. They are as free as the red. Of the latter the camellia leaved (*Ilex camelliaefolia*) and *I. Hodgsoni* are effective in leafage and their fruit. Young trees should not be carelessly cut for their branches, as the fine shape may be easily spoiled. The berries too remain on for months.

MISTLETOE MAY BE GROWN

by slightly notching the bark on the under sides of branches of apple trees, etc., and rubbing the seed in from January to March. The viscid matter soon causes it to adhere. Mistletoe grows freely on thorns, poplars, limes, sweet chestnuts, maples, and mountain ash. It is less free on the oak, but as this is by far its most famous host, should be tried thereon. The plants are very small during the first year, but after three years they push on well. The immense quantity of this favourite shrub used at Christmastide comes principally from Northern France.



MISTLETOE ON CRAB APPLE

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AMONG BERRIED DWARF SHRUBS

Skimmia japonica is the best, and retains its small pea-like red berries well. The flowers are very sweetly scented. *Skimmia japonica* is very suitable for rock gardens. *Ruscus aculeatus*, the butcher's broom, is one of the few shrubs useful for dry places in the shade of trees. If you only have the male plant you will not know of the attractive red berries which are absent. In Britain, however, it seldom comes up to its Italian, etc., beauty, and the same may be said of various ephedras, seldom well berried here, but which are well worth trying, especially on walls.

THE STRAWBERRY TREES

are hardy enough in most places, but their fruit is only perfected in warm spots. *Arbutus Unedo* is the famed tree of Killarney, and has fruit an inch or so across, that Gerard describes as "of a gallant red colour, in taste somewhat harsh and in a manner without any relish, of which thrushes and blackbirds do feed in winter."

Cornus capitata or *Benthamia fragifera* loses its foliage early in the year. The fruits are very showy, but it is hopeless to expect them save in favourable localities. This and *arbutus* prefer sandy peat, and must be very carefully transplanted, with roots intact and soil adhering, else they die.

OF THE YEWE

too well known to need much mention, and thriving almost anywhere, there is a fine yellow fruited form—*Taxus baccata fructo-luteo*.

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THE SNOWBERRY (*Symphoricarpus racemosus*) retains its large white berries well into the winter. This and the golden elder enjoy the annual cutting down that they, and unfortunately other shrubs, get in park shrubberies. In the snowberry an annual spring cutting to the ground ensures a quantity of well-fruited young shoots in the following autumn and winter.

OF WINTER FLOWERING TREES AND SHRUBS

OPEN sky and cloud does not form a good background for the flowering shrubs of winter. What is needed are darkly-hued evergreens, such as various conifers, the yew, etc. Such afford an effective setting to the flowers; and they also afford shelter. All have heard, many have experienced, the extremes of heat and cold that occur in sub-alpine heights in spring. In the sun one basks, but in the shade would freeze. On the sun-exposed slopes the flowers are through—they are open; while on spots untouched by sun, snow still covers the vegetation. This difference of plant growth in sun and shade, although far less noticeable in Britain, should be made the most of in gardens; for although some shrubs, such as the Japanese witch-hazel, covers most of the winter season with its flowers, the flowering season of others, as the yellow jasmine, is far shorter, and could be much prolonged by planting in various situations with different aspects. The same may apply to most winter flowers, but one has to take into account the tenderness of some. And the tenderness is no myth. When the flowers of such good shrubs as the jonquil-scented *Chimonanthus*, the bright-flowered *Corylopsis*, etc., are ruined with hard frosts, there is little wonder that long ago gardeners tacked their winter flowering plants against a wall, and have ever since left them there. The disadvantage of a wall is that one never can obtain the same show, as only one surface is extended, and that usually a trained

and tame one. Further, walls seldom form suitable backgrounds for the several plants that produce flowers before leaves. The earliest flowers are obtained from walls, or close palings, facing south, but even on these the fragrant flowers of *Lonicera*, *Chimonanthus*, and *Corylopsis*, also the jasmine, etc., should be protected when severe frost arrives at the time of budding or blooming. Branches of evergreen, bracken, straw, are all useful if securely fastened, but archangel mats are best, tying these on to wires or a light movable framework fit to shelter the plants at night and also by day, if hard frosts prevail. Also mulch the ground (see page 2).

Could not this covering be done to plants away from walls? Of course, especially in small gardens. Many early rhododendrons, for instance, remain for weeks in perfection if they are guarded from frost by the over-casting of stout tiffany. *Laurustinus*, that is frequently ruined by one sharp frost, would yield abundant flowers in the shortest days if protected well, and this applies to all. Only by this method can most growers secure bushes 15 ft. or so high of the highly-perfumed *Chimonanthus*. All that is necessary are a few strong stakes, driving these in around the bush to be protected, leaving them high enough to keep the covering off the plants. Security against wind is had by tying the covering to the stakes. Such coverings are of course only put on when threatening weather occurs.

No winter flowering shrub should be pruned in summer or autumn, as this would likely result in the cutting off of all next winter's flowering wood. Pruning, if necessary, should take place in late winter or early spring. Shoots of these shrubs may be freely cut when in flower—in fact this is usually the satisfactory way of pruning them. Branches may be cut several weeks before the flowers open naturally. Put in water in a moist hothouse, flowers appear in a few days.

Of the seven genera that contain winter flowering garden shrubs having yellow flowers on naked branches (the leaves appearing after the flowers), *Jasminum* is the earliest and best known. The others, *Hamamelis*, *Cornus*, *Chimonanthus*, *Corylopsis*, *Lonicera*, and *Forsythia*, are shortly noticed further on.

WINTER JASMINE

The beautiful Chinese *Jasminum nudiflorum*, of which there are probably more plants in cultivation than in a wild state, is valuable for walls, for planting as drooping bushes in beds, and near old tree stumps and rocks, over which its gilded branches will droop. Even if frosted, the smaller buds usually escape, so that with milder weather the branches are again decorated with large yellow flowers that

"Twinkle to the wintry moon,
And cheer the ungenial day."

Owing to the stems being dark green the winter absence of foliage is not very noticeable, although a very fine effect is had by training the shoots loosely over an ivy-covered wall. In March tie in, at 4 inches apart, all the strongest shoots that have last flowered, and cut out the rest. From the shoots tied close to the wall there will issue during summer a quantity of spray shoots which are next winter's flowering wood, and should be allowed to grow out, without tying or restraint. Shoots of the jasmine, layered down, soon root.

THE FANTASTIC WITCH-HAZELS

are slower growing shrubs. Unlike the preceding, they have almost scentless flowers. The oldest introduced species, *Hamamelis virginica*, is most frequently met with. It is, however, the least showy of these shrubs. Thoreau

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says: "There is something witch-like in the appearance of the witch-hazel, which blossoms late in October and November, with its irregular angular spray and petals like fairies' hair or small ribbon streamers. Its blossoming, too, at this irregular period when other shrubs have lost their leaves as well as blossoms, looks like witches' craft. Certainly it blooms in no garden of man's." It does now, however, flowering from December (sometimes earlier) onwards.

AN ENDURING WINTER FLOWER

is *H. japonica arborea*, certainly the finest of the well-known witch-hazels. Expanding its blossoms in January, these remain in perfection for many weeks, and are apparently indifferent to frosts. It is the best of winter flowering shrubs for open planting. The curly petals are bright yellow, while the centre of the flower is a deep claret colour. Rises after many years to a height of 18 feet or more, but the shoots of quite small plants are frequently studded over their entire length with clusters of the charming flowers.

The typical *H. japonica*, with lemon-coloured petals, and its other variety *Zuccariniana*, paler, are well worthy of a place. The Chinese *H. mollis*, first introduced to England in 1879, but only lately distributed, promises well. Its petals are not twisted to the same extent as the preceding, only the tips being turned. The foliage of these plants is not unlike that of the hazel. The Chinese and Japanese witch-hazels are propagated by spring grafting, using young plants of *H. virginica* as stock, these being easily raised from seed and established in pots.

CORNUS MAS

is rather an ugly little shrub when young, but a luxuriant plant flinging its twiggy branches over a not too shaded



WITCH OR WYCH HAZEL

path in wood, shrubbery, or garden, will delight one with its thousands of small yellow flowers, neatly tucked in clusters along the leafless branches. An early impression of a walk completely arched over by this *Cornus* is vividly recalled, and not less so the palatable red berries, from which the plant receives its name of Cornelian "Cherry." The fruit is thought little of in Britain, but is esteemed here and there on the Continent.

CORYLOPSIS

although so closely related to the witch-hazels, are very different in appearance, and are much more tender, and with less enduring but fragrant flowers, produced in hop-like catkins. There are four species: *C. himalayana* (too tender for general use, better in greenhouse), the Chinese *C. multiflora*, and the Japanese *C. pauciflora* and *C. spicata*, the last being most fragrant and most generally grown. The pendulous flowers are produced in February, but are easily injured. In foliage these shrubs resemble the witch-hazels.

THE WINTER SWEET OR SWEET SHRUB

are names applied to *Chimonanthus fragrans* (*Calycanthus praecox*), and suggest the wonderful fragrance of the yellowish flowers, often open at the beginning of the year. As these are quickly destroyed by frost, this Japanese plant is usually met with on a sunny wall, in which case all the flower-bearing shoots should be cut within an inch of the older wood in early spring. Young shoots will break, and sufficient of these should be tied back to form the next winter's flowering wood. Shoots of bush plants should be only half shortened. Propagated by seed and layers.

The Chinese variety *grandiflorus* has larger flowers, but in some gardens is less freely flowered. Its perfume

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is rather less. These shrubs are very useful for cutting, a few sprays scenting any room.

HONEYSUCKLES

at once suggest fragrance, and also climbers, which the winter flowering *Lonicera Standishi* and *L. fragrantissima* are not. Their shrubby habit is nearer that of a *Diervilla* (*Weigelia*). Like those shrubs they require little pruning, only the removal of weak shoots after flowering, at which time cuttings of half ripened shoots will root freely if inserted in greenhouse cases. The pale cream flowers of these erect, growing, branched honeysuckles are of little use for cutting, as they soon fall, and being fragile the plants demand a sheltered wall in most places. Like so many of our winter flowering shrubs, they occur wild, or in a savage state, as a Frenchman would say, in China.

FORSYTHIA SUSPensa

also *F. viridissima*, are very fine shrubs, flowering from February well into spring. The shoots are pendulous, the flowers large and jasmine like. Very vigorous, but usually not the earliest of winter shrubs. The flowered shoots should be cut back in April to within an inch of the older shoots. There is a hybrid between the two, also a European species, both little known.

CATKINS

render such trees as the hazel and alders of much interest during the early months. The fertile flowers of the former are small and crimson, easily escaping observation. Of willows, *Salix daphnites* has graceful silvery catkins, and others are also noticeable, not the least being *S. caprea*, the male flowers forming the showier

catkins, very effective in late February and early March woodland and wayside landscape.

EARLY FLOWERS, OTHER THAN YELLOW,

produced before the leaves appear, are *Daphne Mezereum*, *Prunus Davidiana*, and *Cydonia japonica*, all good, but decidedly headed by the very fragrant and gaily flowered

DAPHNE MEZEREUM

or mezereon, always a small shrub, but when well grown, a much branched one. The leafless branches of the normal type are covered with many flowers of a rather dull purple-pink colour. There are, however, two, if not more, red coloured spring varieties, the lightest coloured being the best, as it is brighter. Better than either, perhaps, is the white flowering form, quite as free as the preceding. The above varieties usually flower from February onwards, but the deep hued variety *autumnalis* or *grandiflora* blooms from late autumn into January and should be far oftener planted. Autumn, as their leaves fade, is the best time to plant these fragrant shrubs. The mezereon is usually so freely cut that pruning is unnecessary. Small plants are sometimes very gaunt, but improve with age, although in some gardens this shrub does not appear to be long lived. Seedlings can be plentifully and quickly raised if the seed is sown directly when gathered, and serve as stock for summer grafting the white, pink, and autumn flowering forms upon. The berries of the mezereon, when plentiful, are a midsummer attraction by themselves. The red forms have red berries—the white, yellow.

THE SCARLET-FLOWERED JAPANESE QUINCE

Pyrus (Cydonia) japonica produces its fine scarlet flowers almost every month, the earlier ones not excepted.

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These are succeeded by green fruit, so fragrant that a few will scent a room, and which may be turned to an excellent preserve. The fruits are more freely produced on wall plants, but a much more effective display is secured with bush culture, shortening a number of the unflowered shoots in March. Knaphill scarlet is very fine, also the double scarlet. There are varieties with yellowish and white flowers, but any departure from vivid rose scarlet is in every way of less value. A very beautiful shrub, especially when it reaches 8 feet or so in height. Closely related, but entirely different, are the March

PINK-FLOWERED ALMONDS

of which the common almond, *Prunus communis*, is most frequently seen. The solitary flowers, dappling the shoots in the softest of colours, are very beautiful. After flowering the shoots should be cut back, and this method should also be adopted in the case of *Prunus Davidiana*, and its white form, Chinese trees, similar but earlier flowered than an almond, and often marred by frosts. *P. nanus* is a charming dwarf almond.

EVERGREEN SHRUBS WITH WINTER FLOWERS

are represented in the following genera:—*Rhododendron*, *Viburnum*, *Garrya*, *Daphne*, *Berberis*, *Arbutus*, *Ulex*. *Berberis Aquifolium* is the well-known *Mahonia*, with handsome glossy leaves, and rich yellow scented flowers. Too often crowded, the fine shrub makes a compact bush in the open, some 10 feet in diameter. Much less known is the very handsome, often early flowering *B. Bealii*. *Arbutus Unedo* and *A. Andrachne* flower in January, etc., and are best suited for warm localities where their magnificent fruit may be expected. *Ulex europæus* is the gorse or whin of the common, sometimes in flower by January.

The flowers are useful for cutting, the buds expanding well in water. The double flowered form does not appear to be so early. The whin suffered severely in the great frost of 1894-95, many of the plants being killed to the ground. Of the

EARLY FLOWERING RHODODENDRONS

the deep crimson flowers of *R. Nobleanum*, a hybrid between *R. arboreum* and *R. caucasicum*, are often with us in January. From the first named it inherits its brilliancy. In habit and foliage this hybrid resembles the common Pontic so plentiful in gardens, and could not some of these be cut out and their place taken by those, quite equal in foliage, bearing valuable flowers at a time when little else has stirred from rest? A most charming shrub is *R. praecox*, a hybrid between *R. ciliatum* and *R. dauricum*. It practically takes the place of its two early flowering parents, useful though they are in large collections, and has dainty rose flowers, small leaves, and an irreproachable dwarf habit, and flowers during February and early March. For beds, plant 2 feet apart. As early flowering rhododendrons are hurt not only by frost, but by wind-hurled rains, a sheltered position should be chosen. They dislike a lime or chalky soil, also a heavy clay one, and do best in peat or leaf mould. On the first mentioned soils, pits 3 feet across and $2\frac{1}{2}$ feet deep should be filled in with peat, or peat and loam, or leaf mould and loam. The small rosy-purple flowered *R. parvifolium* and *R. mucronulatum* are charming in January, etc., and but little later is the evergreen *R. dauricum atrovirens*.

THE LAURUSTINUS

or *Viburnum Tinus*, is a favourite shrub with bay-like foliage, and was first grown in English gardens in 1596.

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Coming from Southern Europe, its flowers will not stand hard frosts and unfortunately the leaves also are easily spoiled. The variety *lucidum*, with large leaves and flowers, is even less hardy, and blooms later. The typical plant has rosy buds and white flowers. The variety *Froebelii* has purer flowers. In Britain *Laurus-tinus* seldom reaches over 14 feet in height.

IN GARRYA ELLIPTICA

the male and fertile catkins occur on different plants, the first being most ornamental and far more frequently seen. The dark green leaves form a suitable setting for the numerous lighter greenish catkins produced in the early weeks of the year. It makes a good compact hedge plant, 8 or so feet high, and stands an early spring clipping well. The hardiness of this Californian shrub is still doubted, thus it is frequently planted at the foot of a wall; but unless wall space is ample, other shrubs claim such protection first. It is quite satisfactory as an open shrub in Edinburgh. The roots prefer light and porous soils, and should be carefully preserved when large plants are transplanted, or they will surely die. Cuttings of the young shoots inserted in frames in September root readily.

OF THE EVERGREEN DAPHNES

the spurge laurel (another "laurel"!) is an interesting, useful, glossy-leaved shrub, for shady woodland, or other places. It is correctly named *Daphne Laureola*. Occurring here and there in a wild state in Britain, this dwarf shrub is not appreciated as it might be, for the green flowers of February, etc., almost hidden by the leaves, are powerfully fragrant. The berries are poisonous, and sown when ripe, will produce a good stock of plants. The form *purpurea* has bronzy-green leaves,



THE EARLY FLOWERING RHODODENDRON PRAECOX (CILIATUM X DAURICUM)

while *Philipi* is a pretty miniature, thickly covering the ground, with similar leaves and fragrant flowers. Useful for the margins of shrub beds, etc.

The pink flowered *D. collina* and *D. c. var. neapolitana*, both Italian shrubs, may be sometimes seen in fragrant flower early in the year, but their blooming time is rather uncertain, although frequently lengthy.

Other shrubs and trees commended for large gardens are :—

Clematis calycina (balearica), with pretty greenish-white winter flowers, 2 or more inches across, and evergreen foliage. Only suited for sheltered positions.

The Glastonbury hawthorn is the erratic winter flowering "May," sometimes seen even at Christmas. St Joseph of Arimathea, visiting Great Britain A.D. 63, having built a church, thrust his staff in the ground, which rooting, became, so the legend goes, the prototype of this variety. The Puritans hewed the original tree, but its progeny is scattered far and wide.

In sheltered sites *Nuttalia cerasiformis*, a neat deciduous shrub, produces drooping white flowers during late winter; otherwise it is a desirable spring flowering subject.

Escallonia macrantha and other species, and various shrubby New Zealand veronicas and *Colletia cruciata*, are frequently in flower in mild winters.

HEATHS

The most generally useful of these is *Erica carnea* (sometimes miscalled the Irish heath), which occurs as a sub-alpine plant in various parts of Central Europe. This *Erica* forms compact low cushions, rendered very conspicuous by the brightness of the green leaves. The flowers are visible many months before expansion, and in full bud are somewhat disappointing in colouring, but

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when open are an attractive pale red. Some plants produce deeper coloured flowers than others.

The white-flowered form, *E. carnea alba*, opens its first flowers in December in Edinburgh—considerably earlier than the above—but is not so attractive. These heaths appear to advantage when in isolated beds in the turf, and are neat at all seasons. They are said to grow even in limestone soils. They certainly thrive best in a light soil largely composed of leaf soil and peat. Grown in such material, they make fine subjects if grouped with large rocks, and with age the branches will extend over and drape them. For planting, stuff measuring 12 or so inches across is suitable.

Erica hybrida is probably a hybrid between *mediterranea* and *E. carnea*. In Edinburgh it flowers later than the preceding. The flowers usually appear in March, but in other gardens it is sometimes the earlier. *E. lusitanica (codonodes)* is apt to be cut badly in Edinburgh, but grows freely in a loamy soil. It becomes a small bush, producing very numerous small round white flowers. *E. arborea* is similar, but with whiter and more globular flowers. Neither of these two heaths have the same hardihood or the same attraction (their flowers being white) as the warmly-coloured *E. carnea*. *E. Veitchii* is a hybrid between the foregoing bush heaths. All are easily increased by cuttings two inches long, dibbled in thickly into pans of sandy soil during August. Cover them with a bell-glass. Or insert cuttings in closed frames.



ERICA CARNEA, VAR. ALBA IN A ROCK GARDEN
From a photograph taken in the first week of January

OF THE CHIEF SHRUBS USEFUL FOR THEIR STEM COLOURING IN WINTER

EVERY tree has its distinctive mode of branching. We are especially partial to the winter effect of the silver weeping birch (Plate I.)¹ and the white beam tree (*Pyrus Aria*), but tastes differ. The birch has also its fine bark to recommend it, and this feature is noticeable in other species, especially *Betula papyrifera*. The winter condition of the English elm is beautiful: this tree is well suited for large estates. The bark of many trees is beautiful. Perhaps one of the most distinctive is the thick red brown of the *Sequoia sempervirens*. When planted in woods this gives a peculiar distinctiveness.

The snake's bark maple (*Acer pennsylvanicum*) has singular white striped bark. A variety of this, *erythrocladum*, is a striking red-stemmed maple, and is perhaps the finest of those trees with vividly coloured shoots. It thrives well in the Edinburgh Botanic Gardens, and will be sought for by all.

A number of quick growing deciduous shrubs have young stems of a comparatively brighter hue. By planting freely various effects may be obtained, "some golden red and some again bright green." Thus it is well to arrange to colour.

WHITE.—The white-washed looking stems of *Rubus biflorus* give a curious and interesting effect in winter,

¹ A remarkably fine tree. It is the one quoted in "The Variations of Animals and Plants under Domestication" as "a magnificent weeping birch" (see p. 18, vol. ii.).

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and seen grouped together they recall the distant effect of the lime-washed fig-trees of southern European gardens. Flowering shoots should be cut out at the ground in summer to give the younger rods space. There are several similar species.

The violet willow (*Salix daphnoides*) and *S. acutifolia* have glaucous or greyish stems.

RED.—The cardinal willow and *S. alba britzensis* and several cornels or dogwood—*Cornus alba Spaethi*, with fine golden foliage in summer, while its red stems are conspicuous during winter; normal *C. alba* (*C. sanguinea*) has effective bark, but very green summer leaves, an advantage where a strong summer display is not required.

Berberis diaphana has bright red stems with orange spines, and is very effective when planted 12 inches apart. *B. virescens* is also good.

YELLOW.—*Salix vitellina*, the golden willow or osier, *Alnus incana aurea*, *Cornus stolonifera flaviramea*. The yellow-twigged lime (*Tilea platyphyllos aurantia*) and yellow ash (*Fraxinus excelsior aurea*) are not so effective.

BROWN.—*Salix incana*, *Spiraea Douglasii*, and *Deutzia crenata*.

BRIGHT GREEN.—*Kerria*, *Leycesteria*, and various brooms and whins.

The above should be planted 3 feet apart, and in fifties rather than in fives. Most are more useful as large groups in the "pleasure grounds" rather than in a small garden, but the *Rubus* is singularly effective in small groups. The willows and cornels, planted in irregularly and variously sized masses, are particularly ornamental near water. They, together with *Leycesteria*, *Berberis*, *Spiraea*, and *Kerria*, should be cut down in April to the ground level once they are established, as this will cause plentiful young growth, which is better coloured than the older stems. The willow clippings will root if inserted in frames or shady border.

CHIEF SHRUBS FOR STEM COLOURING 25

A small New Zealand shrub, *Corokia Cotoneaster*, with minute leaves and stems that are whitish in the young state and dark when older, is effective grouped in small beds, but is at present scarce.

Another New Zealand shrub, *Cassinia fulvida*, has effective golden tinted shoots and leaves, and, like the *Corokia*, requires full sunlight and a porous soil.

Aralia chinensis elata (*Dimorphanthus mandschuricus*) is remarkable in its leafless condition, the thorny growths, when the plant is freely grouped, as it is here, being quite grotesque.

NOTES ON TREES, SHRUBS, AND OTHER PLANTS

THE conifers are, of course, unrivalled for their winter beauty. To prevent fractures shake heavy snows off.

The evergreen oak is too seldom seen. There is nothing else like it in the English landscape, and it is a welcome change from the pines, spruces, and silver firs.

The North American *Berberis Aquifolium* or Mahonia has little chance of growing when planted crushed together, useful as it is on dry banks, where little else would do. A plant or two should be tried as isolated bushes; the result will please those who have only regarded the plant as a covert shrub. The foliage is very useful for cutting with hardy winter flowers, chrysanthemums, etc. In some districts, especially on chalk and after frost, it colours well. The leaves are sometimes dyed a coppery colour, but there is usually no need of such artifices.

In America the coloured shoots of *Andromeda calyculata* are extensively used. Here this fine shrub grows well in light soil, but it is a lover of peat. Leaves that are so brilliantly coloured in autumn have generally fallen by Christmas. If, however, young plants of *Quercus coccinea splendens*, the scarlet oak, are planted on a northern exposure, some of the beautiful leaves may be retained.

The Portugal laurel is unrivalled for its handsome growth of dark green bright leaves; but the variety *myrtifolia*, with leaves smaller, darker, and less drooping, is excellent for small gardens.

Of the cherry, or common laurel, the most graceful is *Zabeliana*, while the varieties *Gloire de Bordeaux* and *rotundifolia* are fine large leaved forms.

VARIEGATED LEAVED

A list of shrubs, other than conifers, with variegated leaves may prove useful.

Hollies are the finest, as unlike the majority of conifers, aucubas, etc., their colouring is more or just as prominent in the autumn and winter as in summer.

The best of such hollies may be classed in two groups, those silvered and those gilded. Of these last, *Golden Queen* and the more recent *Golden King* may be selected. The value of the former is well known; the leaves are broadly margined with yellow, not a few being wholly of that colour.

Silver Queen is a good white-margined variety to the former. *Handworthiensis*, more narrowly lined with white, is also useful. *Moonlight* is a popular blotched leaved holly, but this and others are not nearly so bright as the above.

The various varieties of box are well known.

Among the best varieties of *Elaeagnus pungens* are *Simonii*, *aurea variegata*, *Frederici variegata*, *aurea marginata*, and *tricolor*. They are best on sandy soil, or in sheltered positions, and are then very fine. Aucubas thrive anywhere, thus are useful. *A. japonica sulphurea* is very yellow.

Pieris japonica elegantissima is a slow-growing, dwarf, peat-loving shrub. A bed filled with this many years old grows at the Edinburgh Botanic Garden, and the plants have only reached $3\frac{1}{2}$ feet in height. The leaves are thinly margined with white.

Rhododendron ponticum variegatum is seldom seen, but is excellent when massed.

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The dwarf white variegated *Euonymus radicans variegata*, together with several variegated periwinkles, are suitable for banks and under planting trees, where little else would grow.

In warm, sheltered coast and southern gardens, *Euonymus japonicus albo-marginatus*, white-edged, and *E. j. ovatus aureus*, yellow and green, are decidedly the most showy of variegated shrubs.

Ivies of the "tree" section are useful in winter bedding, etc. The best varieties are *elegantissima*, *argenteo-variegata*, *aurea*, *chrysophylla*.

BRONZY-HUED SHRUBS

The best is that variety of *Osmanthus* catalogued as *atropurpurea*. The shoots and both surfaces of the young leaves of this holly-like shrub are a deep bronze green. As the leaves age the shoots and undersides of the leaves become lighter coloured, while the upper surface deepens, and gives the shrubs an almost black appearance. A very good shrub for association with those light green in colour.

Daphne Laureola purpurea grows well under trees, and is useful for better situations also.

Hedera Helix atropurpurea.—An ivy with leaves that turn a purple hue in autumn, and remain thus through winter.

COLOUR SELECTION OF THE SMALLER CONIFERS

The following are for the most part suitable for winter bedding when young, and, of course, very valuable for good permanent positions. The list could be much extended, and is here generally restricted to the smaller bushy shrubs. The correct name for *Retinospora* is *Cupressus*.

NOTES ON TREES, SHRUBS & PLANTS 29

BRONZY RED.—*Cryptomeria elegans* is a beautiful Japanese tree. The foliage, when fully exposed to light, assumes an effective hue in autumn and through winter. Requires a sheltered site, but not a shaded one, or the plant remains green. Cut out duplicate leaders. When used for winter bedding the plants are best grown in pots, as good plants of this shrub are injured by the shifting twice a year.

Thuja orientalis and several varieties of the shrub called *Retinospora ericoides* are also warmly coloured; the last, however, is more violet than red.

GREEN.—*Cupressus Lawsoniana erecta viridis*, *C. L. nana*, *C. L. Fraseri*, and other varieties, *C. nutkaensis*, *Retinospora pisifera*, *R. p. plumosa*, *R. p. filifera*, *R. p. gracilis*, *R. obtusa*, *Thuja orientalis* Zuccariniana, *T. occidentalis*, *Thuiopsis dolobrata*, *Juniperus virginiana*, *J. chinensis*, and many others.

GLAUCOUS.—The Rocky Mountain blue spruce (*Picea pungens glauca*) is a very fine effective subject, but should be grown in large pots if for winter bedding. It is the best glaucous spruce. *Retinospora squarrosa* is a very fine bushy silvery shrub. *C. Lawsoniana argentea*, *C. L. glauca*, are less silvery.

WHITE VARIEGATED.—*Retinospora obtusa albo picta*, *R. plumosa argentea*, *Juniperus chinensis albo variegata*. Portions of the shoots of the above are cream or white, the rest green.

GOLDEN.—*Retinospora obtusa aurea*, *R. plumosa aurea*, *R. pisifera aurea*, *R. p. filifera aurea*, *R. tetragona aurea*, *Cupressus Lawsoniana lutea*, *Thuja gigantea lutea*, *T. occidentalis lutea*. The foliage of the above is entirely suffused with a more or less bright yellow colour.

GOLDEN VARIEGATED.—*Cupressus Lawsoniana aurea variegata*, *Thuja orientalis aureo-variegata*, *T. occidentalis variegata*, *T. plicata variegata*, *Juniperus Sabina variegata*, *Taxus baccata erecta aurea*, etc. These correspond with

the cream or white variegated conifers, except in colour.

SHRUBS, ETC., OF SUB-TROPICAL ASPECT

Many bamboos, starting in unfavourable localities with such as *Phyllostachys Castillonis*, *P. Henonis*, *P. nigra Boryana*, *P. Quilicoides*, *P. viridiglaucescens*, *Bambusa palmata*, *Arundinaria japonica* (especially good, even in trying circumstances). Bamboos become monotonous if patched regularly; they should be planted in irregular groups, by the sides of shrubberies, or in hollows, as in the fine Bamboo Garden at Kew.

The various species of *Yucca* are very suitable for large rock gardens and elsewhere. They require plenty of sun. The leaves of the pampas grass are not unornamental in winter. Very fine is the New Zealand *Phormium tenax* and its varieties. The plants are unhurt by the hardest Edinburgh frost and keenest winds, and flower in summer. Those represented in the accompanying illustration are 9 ft. high. The variety *Atropurpureum* has dark leaves. Only a portion of its seedlings come true.

FRAGRANT EVERGREENS

Although the bay laurel, *Sassafras*, *Umbellularia*, *Myrica cerifera*, *M. californica*, etc., have fragrant evergreen leaves, the perfume is only noticeable when the leaves are crushed. Shrubs that perfume the air are few. The box diffuses a very characteristic pleasant perfume in the garden that affects everyone, but of which few realise the source. Especially noticeable is it in sunshine or after rain. Some people dislike it. The fragrance of the thyme is carried a considerable way, but these plants are only small sub-shrubs.

Among the garden conifers, none are more pleasantly scented than the Douglas fir. The leaves are fragrant



NEW ZEALAND FLAX (PHORMIUM TENAX)

at hand, and their scent is carried on the breeze. The species, and many varieties of *Thuia*, give fragrance to the garden (*T. Standishii* an exception), and should be largely planted, for supplying scented shoots for cutting.

DWARF PLANTS.

Two Carolinian plants of much beauty in winter are *Galax aphylla* and *Shortia galacifolia*, both scarce in Britain, although they are easily imported. Over thirty million of *Galax* leaves are used per annum in America, and they also find favour in London for wreath work, etc. The Americans distinguish two varieties—one bronzed-leaved, the other green—the former the best. In Edinburgh two varieties are grown—*G. aphylla*, with leaves 2 to 3 inches across; *G. aphylla major*, 4 inches. To obtain the finest red-bronze colouring, a sunny situation should be chosen, in peat or leaf soil. *Shortia*, with leaves less durable when cut, and beautiful spring flowers, requires similar treatment.

Euphorbia Myrsinites is one of the finest rock-garden plants in winter. It is a Mediterranean plant, with fleshy glaucous leaves; quite hardy in Edinburgh. Rocks should be placed around for the shoots to rest upon. Plant in sandy, poor soil, in full sun.

Gaultheria procumbens.—A dwarf creeping shrub, with red-tinted leaves; and the trailing *Vaccinium macrocarpum*, with shoots 4 feet or so in length, are suitable for rock-gardens, etc., and are well coloured when planted in a sunny position. Both like peat.

Veronica cupressoides variabilis.—A dwarf shrub not unlike a golden, green-leaved *Retinospora*, but entirely procumbent. Thrives in sandy soil and sunny spots; better coloured there. Very suitable for small beds and rock gardens; never shabby. Replant if portions die.

DWARF CONIFERS.—These are suitable for rock-

gardens, and remain there attractive in winter. Should be planted in places well exposed. The best is *Juniperus communis fastigiata* (*J. hibernica*), but it is a scarce plant, a miniature of an Italian cypress. The hedgehog juniper (*J. c. hemisphaerica*) is also rare, but young plants may be procured. These, of course, require several years before they are useful. The dwarf spruces are more easily obtained; they are varieties of *Picea excelsa*, and among them *Clanbrassiliana*, *pumila*, *pymaea*, and *Remonti* are good.

Small plants of various *Retinospora* are useful for furnishing rocky slopes, etc. They remain small for some years, but, unlike the above junipers and spruces, ultimately "run up."

DWARF SILVERY SHRUBS.—*Artemesia tridentata*, lavender, *Othonnopsis cheirifolia*, *Santolina*, *Senecio compacta*, *Senecio Grayi*.

Evergreen ferns, such as the numerous varieties of the hart's-tongue, are useful for rock-gardens, and usually are bright in winter.

Epimedium pinnatum, planted in large clumps, gives a distinct and pleasing appearance. It is the best species for winter foliage.

The following should also be included in selections for the rock garden, as in addition to summer, etc., flowers, their foliage is pleasing in winter:—*Antennaria*, *Arctostaphylos*, *Dianthus* (pinks), *Genista pilosa*, *Iberis*, *Saxifraga* (mossy), *Sedum*, *Sempervivum*, *Thymus*, *Veronica* (many New Zealand species).

WINTER BEDDING

AUTUMN WORK

THIS usually consists of the filling up, by means of small conifers and other shrubs, of those beds, or portions of the garden occupied by tender bedders and annuals during the summer.

Each bed might be filled with plants of one variety. On the other hand, where the beds are large, planting of several varieties is usually favoured, the plants being dotted, or placed in lines, or in blocks, etc. In small gardens, some may prefer a planting in which every tree is different from its neighbour.

Suitable selections have been given, but by far the best plan is to choose by sight in a nursery.

Plants 2 to 4 feet high are most generally useful; they should be carefully moved with balls of soil adhering, as soon as possible after the removal of the summer plants. They may be set so closely that their branches touch, or further apart. It is less formal, and more satisfactory, if two or three sizes are used in planting the beds, putting in the smaller plants more closely between the larger. Water well unless the soil is moist.

Before the spring or summer planting of the beds take place the shrubs must be carefully lifted and replanted in a spare piece of ground, watering well for some weeks after, if needful. Here they will stop until autumn, when they are again transferred to the flower-garden, etc. Treated thus, many shrubs remain in good condition

for a number of years, until, getting thin and shabby with two shifts a year, they must be replaced by others. Retinosporas and other bushy shrubs may be cut back a bit annually to keep them small, if this is desired.

If the shrubs are grown in large pots or tubs, the frequent shifting does not of course affect them at all, as it is merely a matter of replunging the pots in the earth. They should be repotted in the spring of every alternate year; but larger pots may not always be needed or cannot be given, in which cases the roots should be shaken free of a portion of the soil, and put back into fresh, at the same time shortening the shoots. The pots should be plunged below the rim in summer as well as winter, and during warm weather will require watering.

If portion of the stuff is to be grown in pots, that portion should include those plants that do not take kindly to frequent transplanting—such as hollies, *Elæagnus*, *Osmanthus*, ivies, mahonias, *Cryptomeria*, etc. Yet most may be treated in the first mentioned way, if care is taken, and this saves the cost of pots and extra watering. Retinosporas and other small conifers are very easy to deal with, and are effective, facts which account for their popularity.

Shrubs in pots may be plunged here and there between the hardy plants in herbaceous borders, to relieve a bareness very common to that portion of the garden. Herbaceous borders are much improved if planted permanently with a number of good ever-leaved shrubs, bringing these well to the front here and there. Shrubs are especially valuable in connection with bulb-borders, for planting together; the decay of the foliage of such noble plants as lilies, *Eremuri*, etc., does not leave a desolate stretch of bare ground, as would otherwise be the case. Herbaceous plants, and choice evergreen and other shrubs have been too often separated. Associate

(not crush) them in planting, and the dreary expanses of bare ground in gardens will be seen no more.¹

Bedding Kales are better than too much bare ground. Sow in May, and prick off in rows 18 inches apart. Remove in autumn to their winter position. There are several good varieties; the white-leaved is very effective when dotted amidst the arctic curled kale, etc., or wall-flowers, and other spring-flowering subjects.

¹ In this connection, see an instructive and entertaining account of "A System of Winter Bedding," by the Rev. W. Wilks, M.A., Secretary of the Royal Horticultural Society, published in the Society's *Journal*, vol. xii.

OF HERBACEOUS AND OTHER WINTER FLOWERING PLANTS IN THE OPEN

THE flowers of *Anemone*, *Adonis*, *Crocus* are all sun loving, and their perfect expansion can only be secured by planting the roots in sunny positions. This does not of course prevent their use beneath the branches of deciduous trees, for these afford protection rather than winter shade, and form an ideal setting for these early gems.

Some nurserymen keep such good plants as hepaticas and Christmas roses in a finely divided state, for which undivided gold goes but a little way in purchasing enough to make a fair display. These and other plants are easily procurable by traders from abroad, for many are the places where quantities can be obtained with but little trouble. If freshly imported plants can be obtained, these will be found quite satisfactory, but of course they should not remain unplanted long.

What are wanted are fresh types of winter-flowering plants. Of some, well known, the varieties are very numerous, but as many are very scarce, there is little general interest taken in them.

THE WINTER ADONIS

(*Adonis amurensis*).—An Amurland plant, with yellow, anemone-like flowers, and finely divided leaves. The stems reach 12 inches or so in height, and bear one or more flowers each, that expand in Edinburgh during early February and continue in succession for a month or more. The Japanese cultivate several colour forms

of this *Adonis*, but those that are red are not brightly coloured. Imported roots may usually be had in autumn, and many of these are greatly travel-worn; and although they push and flower freely the first year, they are not unlikely to go back a bit the next. They are best planted and left alone.

FAIR ANEMONE

(*Anemone blanda*) is the Eastern form of the later-flowered *A. apennina*, the most glorious of Italian blue flowers, and fortunately well established in many fine gardens. The flowers of *A. blanda* are a paler blue, and appear in the first weeks of the year from plants put in against a south wall, and well exposed to the early winter sunshine. The tubers should be planted $1\frac{1}{2}$ inches apart, and 2 inches deep. A valuable subject for setting in thousands beneath the shelter of deciduous trees. There are various varieties, white, pink, deeper blue, and blue and white (*scythinica*), but in many instances these are later flowering.

HEPATICA

(*Anemone Hepatica*), usually known simply as *Hepatica*, in gardens, is quite unlike the preceding, having strong, deep-going, tough roots. In shade the leaves are retained through the year, but the plants are not injured if the leaves are withered during summer sunshine, and plants should be set in sunny crevices of stone steps, etc., in rock gardens as well as elsewhere. Wonderfully attractive are these plants. The flowers, about an inch across, may be had in various shades of blue, pink, and white, the first two being, of course, most effective. Stray flowers appear before Christmas, but the second month of the year is here before they appear in full parade. The double-flowered varieties have very neat "double" blooms, but often less freely produced, and

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usually later. When planted the tops of the buds should be just above ground. As the growth is slow, only 3 or 4 inches need separate the plants, if groups are desired. Seed should be sown as gathered off the plant—do not store it. The American forms of the plant (*A. H. acutifolia*) are inferior to the European forms.

LARGE HEPATICA

(*Anemone angulosa*) is similar to the preceding, but is a larger plant, in both flower and leaf, while the habit is more of a creeping nature. It, however, is not so generally useful as *Anemone Hepatica*, as the flowers are less freely produced. This, too, frequently applies to the forms *lilacea* and *nivea*. A native of Eastern Europe.

THE GLORY OF THE SNOW

(*Chionodoxa Luciliae*) is the earliest flowering of the *Chionodoxas*. *C. L. Tmoli* is by far the most effective when massed.

WINTER CROCUS

(*Crocus Imperati*), an Italian plant, with sweetly-scented flowers, is normally lilac-purple in colour, but there are forms with lilac, dark purple, and other shades. A very attractive, early flowering plant for a south border. The crocuses mentioned on page 49 may be tried here also.

Of the Dutch varieties, the yellow ones are often earliest—they are derived from a different species to those purple, white, and striped. The varieties of *C. chrysanthus*, although smaller and more expensive than the Dutch, are well worth attention.

Large-flowered white varieties, such as *Mont Blanc*, are not particularly effective when planted alone, but



EARLY FLOWERS OF ANEMONE HEPATICA IN WOODLAND

serve to throw the rich hues of those purple and yellow that should always accompany them.

WINTER CYCLAMEN

(*Cyclamen Coum*).—One of the best known hardy winter-flowering species, but seldom does well in cold districts; crimson, pink, or white blooms are easily damaged by either frost or wind and rain. Sand and brick rubbish is the best planting medium to use in heavy soil. The tubers should be covered one inch. The leaves are beautifully marbled. *C. hyemale* is little known; its flowers, often produced in mid-winter, are a beautiful crimson. See page 49 for others.

WINTER ACONITE

(*Eranthis hyemalis*) offers honey to the early bee, and attraction in the form of cupped, bright yellow flowers and neatly frilled leaves to everyone. It thrives in light soil, and should be largely planted beneath trees, choosing the barer spots rather than where the grass grows thickly. In several places in England this Continental plant covers entire woods, and is especially beautiful when it appears just above a carpeting of ivy. The root is a tuber, and should be planted as early as possible, and left of course undisturbed. Set 2 inches apart, and at a like depth. The leaves of the less known *E. cilicica* are cut to a greater extent, and the flowers are even earlier than the better known winter aconite. These plants, only a few inches in height, flower from January onwards. Neither rabbits nor other evils injure them.

SNOWDROP

(*Galanthus nivalis*) hardly requires mention, but the planting of larger quantities may be yet advised. The single

is appreciated for its elegance; the double-flowered, when massed, produces a greater extent of white. Snowdrops are soon injured by being kept dry, and those who can obtain clumps fresh from the ground should do so. They may be lifted at any convenient time, but for grass plantings August and September are the best months. Set the bulbs 6 inches deep, and for thick masses 2 inches apart.

GIANT SNOWDROP

(*Galanthus Elwesii*) is very effective for its large flowers and broad foliage. Rough weather levels this and other large-flowered snowdrops, and thus the typical *G. nivalis*, naturalised in various parts of Britain, but not truly a native, is yet unrivalled for large plantings. Probably we may have one day a race of real yellow-flowered snowdrops, which if well constituted would be most useful, as these flowers stand the stress of wintry weather better than do golden crocuses or winter aconites.

GOLD COIN

(*Hacquetia Epipactis*) (*Dondia*).—As in the *Eranthi*, half the attraction of this quaint dwarf plant rests in the flowers and half in the pale-green leaves surrounding them. This Central European plant is, however, not tuberous, but deep-rooting like the Hepatica. *Hacquetia* is seldom seen in plenty, as it is rather a slow growing subject, but one well worth having, as its brightness is with us for fully six or so weeks, from February onwards. It thrives best in rich moist soils and in half-shaded positions. Increased by division or by seed.

CHRISTMAS ROSE

(*Helleborus niger*).—This might well have headed the list of winter flowers, for it is in perfection at the time



CHRISTMAS ROSES (HELLEROSUS NIGER AND A LARGE FLOWERED VARIETY, MAXIMUS)

its name at once suggests. There is always the tendency to overname varietal forms, and sometimes the slighter the difference the thicker the names fall. Thus among snowdrops and Christmas roses we wade amidst names and must note several of the latter. The largest flowered is *maximus*, with 4-inch blossoms; in some districts it is past before the close of the year. This form is also known as *major* and *altifolius*. A much smaller variety, *angustifolius*, is good. But description of the numerous varieties serves no purpose, as they for the most part are difficult to distinguish unless one has the actual specimens at hand. As the flowers of *H. niger* are easily soiled by bad weather, by far the best plan when they are required for cutting is to cover the plants (they should be planted close together in a bed for convenience) with hand-glasses or a few panes of glass. With this protection the flowers will expand untarnished. It is well to sprinkle a little coal ash among the crowns in early autumn and after to ward off slugs from the young flower buds.

LENTEN ROSES

(*Helleborus*).—These are cross-breds of the Grecian *H. orientalis*, which, like the Christmas rose section, has evergreen leaves; the flowers, however, are much spotted, often with curious and sometimes with melancholy colours. Among the best are—Afghan Prince, deep purple; Apotheka Bogren, spotted purple; Chancellor, rose; Dr Hogg, deep rose; Psyche, pink and crimson; Sylvia, rose.

H. viridis is another species that has several garden forms, all deciduous, however.

A strong grower, producing quantities of whitish flowers, is *H. antiquorum*.

Many of these Lenten roses expend their first flowers

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during January, and usually carry more flowers per spike than do the Christmas roses.

They are well adapted for planting in shrubberies and woodlands.

So also is *H. foetidus*, occasionally found wild, with many green flowers edged with dull purple. Its chief beauty lies in the foliage, which, when plentiful, is very noticeable from its dark colouring.

The best time for lifting and dividing is directly after the flowers fade, but if doing well they should be left alone to form handsome clumps.

WINTER HYACINTHS

(*Hyacinthus ciliatus*).—A delightful February flowering bulb from Asia Minor, with flowers of grape hyacinth pattern. They are blue, and are most attractive if the bulbs are set closely together, like snowdrops. On a south border flowers appear in December and last for several weeks. There is a large variety—*giganteus*. The so-called *Muscari praecox* commences to flower in January.

BULBOUS IRISES

Those named on page 49 are all suitable for south borders in cold districts, and other sites in favoured gardens. Their flowers are for the most part fragrant, their colours varied and rich. As the satiny petals are very fragile, they are easily spoiled by frost, winds, or rain; but a hand light, or any protection of this kind, would prevent such evils. The bulbs should be planted when procured, allowing 3 inches soil above their apex. Care should be taken not to press the bulb into the soil in those cases where the roots are fleshy, as any pressure causes them to snap off. They like well drained soil, and it is well to place a handful

of fine brick dust around the bulbs in planting. The flowers are produced during January, February, etc.

The curious green and black flowered *Iris* (*Hermodactylus*) *tuberosa* likes a dry soil, and frequently flowers early in the year.

ALGERIAN IRIS

(*Iris unguicularis* or *I. stylosa*) is not bulbous. A south border and plenty of brick rubbish is usually necessary if flowers are to be had. Most people manage to get leaves but no flowers, while in some districts the plants soon die off. The lilac flowers are fragrant. There are forms with purple flowers, also one with white.

SNOWFLAKE

(*Leucoium vernum*) flowers with the snowdrops. The flowers are larger, very fragrant, and the petals are tipped with green in the normal form and with yellow in the variety *carpathicum*. Both these pretty plants deserve extended favour.

DWARF DAFFODIL

(*Narcissus minor minimus*).—A miniature daffodil, only rising 3 inches or so above the ground, and flowering in February and early March. Often sold untrue.

N. cyclamineus, *N. Bulbocodium*, and *N. pallidus praecox* are early flowering, and clumps should be planted in the sunniest spot to get the earliest results.

WINTER HELIOTROPE

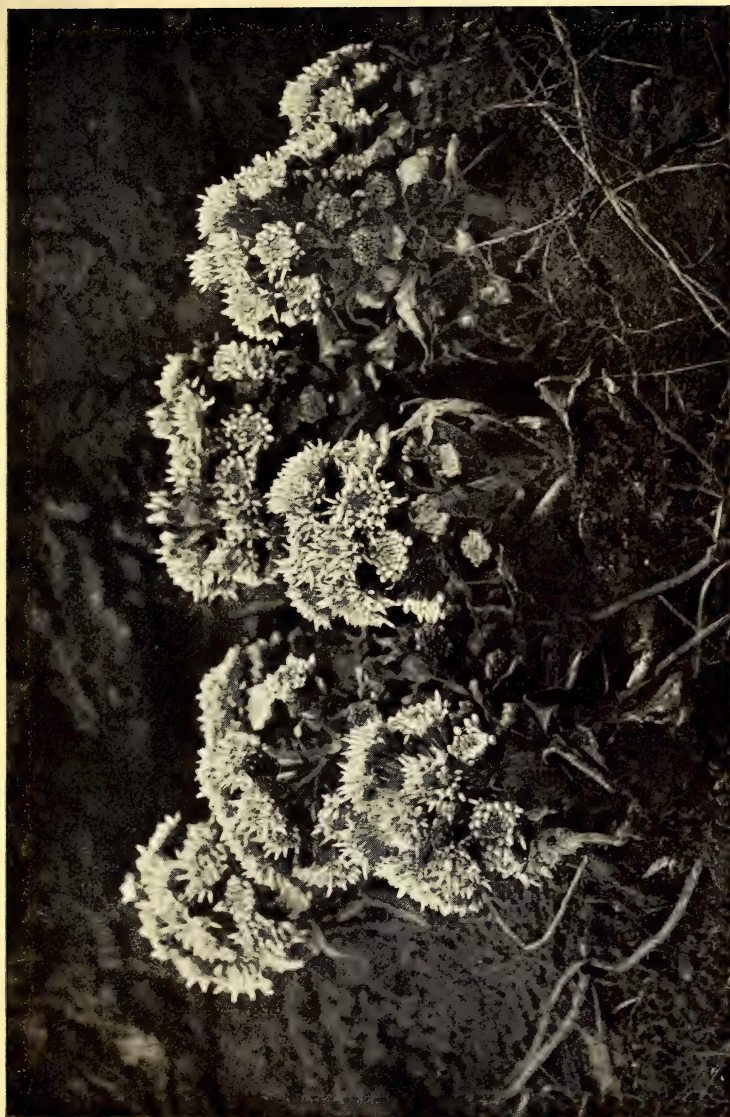
(*Petasites fragrans*).—This is a strong-growing creeping plant, well suited for sunny banks and the milder portions of the garden, where it sends up in January

spikes of whitish flowers noted for their fragrance, from which the plant obtains the name of "winter heliotrope." Grown in quantity their flowers perfume the air. Those who wish to have it in quantity might soon do so, as there are gardens where there is evidently a superabundance of this rapidly spreading plant.

EARLY FLOWERING SAXIFRAGAS

The earliest is usually the alpine *S. Burseriana*, with large white flowers on stalks little more than an inch in height. They expand in February or, down south, even before. Several varieties exist having larger flowers, but all being white are not so conspicuous as those of *S. Boydii*, a superb hybrid too scarce to plant in any quantity. That being so, the usual yellow flowered one is *S. apiculata* (*S. luteo-purpurea*, etc., of gardens), which forms a close compact carpet of vivid green, ornamented from February onwards with many lemon yellow flowers. This hybrid was received from Mr Maly, the gardener to the Emperor of Austria, by a nurseryman of Zurich, who distributed it under the name of *S. Malyi*. It should be grown on a rockery well exposed to light—not under trees—and planted in a sandy, stony soil. During summer it should have plenty of water, and may be increased by pulling the plants to pieces just as the flowers fade.

Another section of Saxifraga, those usually known as *Megasea*, are beautiful early flowering plants, which, unlike the above, will thrive in shade. The leaves are large and the flowers usually pink, and borne in profusion on 1 foot and higher stems. Left alone they will spread into large, handsome clumps, which, if top dressed occasionally, will give numerous flowers. With age the plants become leggy, and should be taken up after flowering, divided and replanted more deeply.



WINTER HELIOTROPE (PETASITES FRAGRANS)

Several other of these plants are noted for the cold greenhouse, which is necessary if they are to be accounted winter flowers. *S. Grisebachii* is among them, but this pretty new Macedonian plant with crimson stems and bracts, produced in February and March, thrives out of doors if given a porous rooting material.

The crimson flowered *S. oppositifolia* and its numerous varieties are very showy at the end of February and during early March. They should be abundantly watered in summer, and some peat worked in amongst their stems annually. Although they grow freely, in much shaded places, they do not flower well. *S. retusa*, an allied species, especially enjoys the summer sunshine, provided moisture is abundant.

SQUILL

(*Scilla bifolia*).—The earliest species. *S. b. alba* and *S. b. taurica*, the last with deeply coloured flowers, are very beautiful. *S. sibirica* is later and better.

PURPLE BELL

(*Sisyrinchium grandiflorum*) has glossy leaves and dark purple bell-shaped flowers, on slender stalks some 8 inches high. A beautiful plant flowering in Edinburgh during February and March. It is apparently later in some counties. The beautiful white flowered form, which originated at the Royal Botanic Garden, Edinburgh, is a good consort.

SKUNK CABBAGE

(*Symplocarpus foetidus*) flowers in February onwards in Edinburgh, sending up just above the ground curious reddish arum-like flowers. The leaves appear later. A curiosity—not showy.

SPRING STARFLOWER

(*Triteleia uniflora*) produces winter flowers on dry sheltered south borders. The flowers close during dull weather, but on bright days open wide. The normal form is lilac; the variety *caerulea* is porcelain-blue; *conspicua* is larger-flowered.

OTHERS

The following are rather uncertain winter flowering plants, many not blooming until spring, to which season some most properly belong. However, as many are seen during winter in sheltered gardens, a list may be useful.

Anemone fulgens.—Also the St Brigid strain, etc.

Auriculas.—Stray flowers often appear in winter.

Cheiranthus kewensis is a hybrid between the pretty *C. mutabilis* and *C. Cheiri*, or common wallflower. The former parent is a native of the Canary Isles. *C. kewensis* is not very hardy. The usual wallflowers frequently flower in winter, especially in dry soils.

Chrysanthemums planted against south and other warm walls are frequently in flower during December and January. Strike cuttings in March, pinch once, plant out 1 foot apart, putting a little coal ash around them to ward off slugs. Choose varieties with close petaled flowers. Elsie, a reflexed yellow Jap, the single flowered Purity and Mary Anderson, several pompons, like President, Source d'Or and others, have proved suitable in Edinburgh. The white and pink flowers are most easily damaged. Yellow stand better. An eave above the wall is a protection, so is a covering of mats or other material on cold nights. Side shoots continue the display for a considerable period.

Daisies.—Winter flowers are induced by dividing the plants in autumn.

Doronicums frequently give winter flowers.

Gentiana acaulis also.

Lithospermum prostratum and *L. rosmarinifolium*.—Beautiful rock shrubs, the latter seldom without exquisite blue flowers. Both are rather tender.

Myosotis dissitiflora.—The earliest forget-me-not. In some gardens well in flower during February or earlier, in others much later. Sow annually in May, and plant in flowering quarters in autumn.

Periwinkles, Pansies, Tufted (*Violas*).

Polygala Chamaebuxus. A small shrub, with yellow flowers, and in the variety *atropurpurea* with crimson and yellow colouring. Flowers in late autumn and winter in Edinburgh. Very suitable for rock gardens.

Primroses.—If these are divided in August and well watered, earlier flowers are often produced than from those left undisturbed. Seedlings should be plentifully raised, as they also tend to flower earlier.

Primulas.—Several species as *P. denticulata* and *P. nivalis* (of gardens).

Violets.—The fragrant single-flowered Russian is often in advance of all others with its winter flowers.

A Cape aquatic—*Aponogeton distachyon*—is frequently in flower during winter at the Royal Botanic Garden, Edinburgh. It grows in an open pond, which, however, is partially fed by natural warm springs. The flowers are white and hawthorn-scented.

COLD AND ALPINE PLANT HOUSES

MOST low-roofed houses serve well, but as winter flowering crocuses and irises love what little sunshine there is going during the winter, a north aspect is not favourable. All the plants grown in these houses are uninjured by frost, but their flowers are apt to be destroyed by severe spells of cold. Mats are useful for covering the roof, but if a range of heated houses is close by, it is certainly worth while to run a couple of 4-inch pipes round the cold or alpine house. Valves should be attached to the pipes at their entrance to the house, so that the pipes need only be heated when the temperature sinks below 38 degrees, and even then a slight warmth in the pipes is usually sufficient. With artificial heat, the day temperature should not be above 40 degrees, but on sunny days this will be exceeded without artificial heat, and such weather is, of course, just the thing to bring the many beautiful flowers that may be grown here to perfection. During fine mild days abundant ventilation is required.

The best effect is gained when miniature rock work is built either on, or wholly instead of, the formal stages of the greenhouse. The pockets between the rock are filled with either earth, sifted coal-ash, or cocoa-nut fibre, and in this material the plants are easily plunged, and replaced by others as they pass out of flower. The surface of the pocket soil should be surfaced with living moss. For small rockeries virgin rock may be used. In cases where the rock work descends to the floor level,

the lower portion or pockets are best filled with hardy evergreen ferns.

In spring, as the alpine and other dwarf plants have ceased flowering, they should be repotted and plunged in beds of ashes in the open until the autumn frosts. *Cyclamen*, *Goodyera*, *Shortia*, and *Galax* should be placed in a shaded position during summer. *Cyclamen* should never be "dried off." They sometimes remain four or five years without flowers or foliage (yet alive) if this is done.

SELECTIONS

The following may usually be had in early autumn, as bulbs, corms, or roots, usually more or less dried:—*Adonis amurensis*, and varieties; *Anemone blanda*, and varieties; *Bulbocodium vernum* and *B. v. fol. var.*, with purple crocus-like flowers; *Chionodoxa*, *Luciliae*, and varieties; *C. sardensis*; *Colchicum crociflorum*; *Corydalis tuberosa alba*, etc. The following species of *Crocus*:—*alatavicus*, *ancyrensis*, *aureus*, *biflorus*, *chrysanthus*, *corsicus*, *dalmaticus nivens*, *dalmaticus violaceus*, *Fleischeri*, *Imperati*, *luteus*, *Korolkowi*, *nevadensis*, *Olivieri*, *reticulatus*, *Sieberi*, *Suterianus Tauri*, *Tommasinianus*, *vernus*, and varieties, *versicolor*, the last two the progenitors of many of the various coloured Dutch varieties, which are also useful for pot work; the following *Cyclamen*:—*Atkinsii*, *Atkinsii album*, *Coum*, *Coum album*, *libanoticum*, *repandum*; *Eranthis cilicica*. The following species of *Galanthus* (snow-drop):—*caucasicus cilicicus*, *Elwesii*, *E. Cassaba*, *E. ochrospilus*, *Forsteri*, *Ikariae*, *Imperati*, *latifolius*, *lutescens*, *plicatus*, etc.; *Hyacinthus ciliatus*. The following species of *Iris*:—*alata*, *assyriaca*, *Bakeriana*, *caucasica*, *Histrio*, *histrioides*, *persica*, *Heldreichi*, *Hausknecki*, *purpurea*, and *Tauri*, *reticulata*, *sindjurenensis*, *Vartani*; *Leucoium vernum* and *L. v. carpathica* (snowflakes); *Muscari praecox* (so-called), *Narcissus Bulbocodium*, *N. cyclamineus*, *N. minus*,

N. pallidus praecox, and many others later; *Scilla bifolia*, *S. b. alba*, *S. sibirica*, *S. s. alba*, *Scoliopus Bigelovii* (quaint, not showy), *Sisyrinchium grandiflorum*, *Triteleia uniflora*, etc.

MOUNTAIN PLANTS AND OTHERS

Arabis blepharophylla (rose); *Draba*, *aizoides* (yellow); *D. Mawii* (white); *Morisia hypognea* (yellow); *Noccaea stylosa* (pink); the following species, etc., of *Saxifraga*:—*Burseriana*, *B. major*, *B. multiflora*, *Salomoni*, *oppositifolia alba*, all white flowered; *apiculata*, *Boydii*, *Elizabethae*, *pseudosantha*, *sancta*, all yellow; *oppositifolia* (many varieties), *retusa*, and *Grisebachii*, all crimson flowered. The last is always attractive. All the above should be grown in pots, but slightly larger than the diameter of the plants. The soil should be sandy or well drained. There are also several plants worth growing for their neat alpine character, although they flower later:—*Saxifraga caesia*, *S. cochlearis minor*, *S. longifolia*, *S. squarrosa*; *Sedum brevifolium*, *S. b. Pottsii*, *S. corsicum*, *S. Stalii*, and *Sempervivum arachnoideum Laggeri*—the curious and beautiful cobweb houseleek.

The following are stronger-growing, winter-flowering plants, doing well in loamy soil:—*Anemone Hepatica*, numerous varieties. *Cheiranthus kewensis* (winter wall-flower), *Hacquetia Epipactis*, *Helleborus* (Christmas roses), *Iris stylosa*, blue and white flowered varieties (pot in April), *Primulas*, including the varieties of the common primrose and many species, as:—*capitata*, *denticulata*, *megaseaefolia*, *rosea*, *rosea splendens*, *viscosa*, and others. *Saxifraga* (*Megasea*):—*cordifolia*, *Strachyi*, *ligulata*, and many varieties; *Valeriana arizonica*. Several species of hardy *Opuntia* are suitable. They do not flower in winter.

FOR THEIR LEAVES

The following dwarf plants may be grown and associated with early flowering bulbs, etc.:—*Arabis*

albida variegata, *A. lucida variegata*, *A. procurrens variegata*, *Aubrietia deltoidea variegata*, all with variegated foliage; *Arum italicum*, a tuber with spotted leaves; *Erythronium Dens-canis*, bulb, blotched foliage; *Galax aphylla*, bronzed leaves, peat; *Gaultheria procumbens*, red berries and leaves, and *G. Nummularia*, elegant sprays of small red-tinted leaves; *Goodyera Menziesii*, with dark-green, white-banded leaves, and *G. pubescens*, dark-green, with numerous white veins, are two beautiful, little, hardy orchids, requiring peat and leaf mould, and a north frame or shaded spot in summer; *Shortia galacifolia*, red, likes peat; *Tanakaea radicans*, a distinct leaved Japanese plant, etc.

AMONG FLOWERING SHRUBS

for the house, *Daphne Blagayana*, with cream flowers, and all the other species mentioned on p. 21 are excellent. *Jasminum nudiflorum* does well. Cut the flowered shoots to an inch above the old wood in March. *Rhododendron praecox*, and *Viburnum Tinus*, the Laurustinus, are excellent for pot culture, but care should be taken to get plants well set with buds. With these may be grouped such things as *Bambusa Fortunei fol. arg. var.*, a pretty dwarf bamboo; *Libertia pulchella*, *Ophiopogon Jaburan variegatus*, and *O. spicatus fol. aur.*, *Yucca pendula*, *Veronica Andersoni variegata*, *Euonymus japonicus elegantissima*, and other forms. Also Japanese dwarfed trees, and the quaint juniper known as "hiberica." Berries must not be forgotten in the cool house. *Pernettya*, in many colour forms, may be had well covered in fruit, even in a small state. *Skimmia japonica* is red berried, while the inflated fruit of *Physalis Alkekengi* and *P. Francheti* (winter cherries) are long lasting on pot plants.

VIOLETS IN FRAMES

A fresh plantation should be made yearly, as the frequently seen beds thickly matted with roots and

runners will not produce the material for good winter violet crops. In early April select a partially shaded position for the new violet bed. An E. border, sheltered from fierce sunshine by a wall or hedge, is suitable. Often an ideal place exists beneath orchard trees. The hotter the site, the drier the soil, the greater the necessity of shade. Dig the ground over, adding old manure and leaf soil, unless the soil is rich and friable. This done, lift the plants of the old bed, and select the best pieces for replanting, which are the strongest rooted runners of the previous autumn. Some runners do nothing but run, they are valueless. Others stop, and make a good crown; such are good, but if absent or few, the old clumps must be pulled apart, and single crowns chosen. Plant in the freshly made bed 9 inches apart both ways. It is a mistake to set them too far apart, as this leaves the soil exposed and dried.

Violets love a hot summer, but with it they want moisture. Drought invites red spider. In dry weather water twice a day. A spread or mulch of $\frac{1}{2}$ inch of leaf mould over the bed is beneficial. Cut off the runners as they appear, except a few strong ones that will form fine plants for next year's bed.

Early in September prepare the plants for protection. Shift carefully so as to retain a ball of soil around the roots, and transfer to a frame sloping south, in which at least 6 inches of soil has been placed overlaying 18 inches of leaves and stable litter. There is no necessity for deep frames for violets. The leaves should be 6 inches from the glass. Cover the frames with lights, and keep close for a week, raising the back of the sash up about an inch. Shade during sunshine. When the plants pick up, remove the lights every fine day and replace at night. Frost must not be allowed in the frame; keep it out by covering the lights with straw, straw mats, Archangel mats, or boards, etc., in all cases

laying heavy planks across to keep things down. Violets show their dislike for a close atmosphere by damping off, and the flowers failing to open. Thus smoky fogs are very injurious, and in towns it sometimes becomes impossible to produce violets. Pot violets produce excellent flowers in 6-inch pots. Pot in September and place in cool pits. They are valuable for rooms, as violets on the plants retain their fragrance beyond those cut. These latter lose their best perfume before they fade. Varieties are numerous. A course to be much recommended to those commencing violet culture is to try all. Then a satisfactory selection may be made. Marie Louise is sweet, double, and popular, but its mauve colouring does not suit some folk. In some places, as in New York, it is not so good a doer as others. De Parme is similar; sometimes it thrives where Marie thrives not. Neapolitan is often found wanting in early and continuous supplies. Of the double white varieties, Comte de Brazza (Swanley White) is the best, but it is usually less free than the coloured violets.

Among single violets the old Russian, a fine blue, has given way in many gardens to the large violet purple California. The deep Wellsiana and blue Princess of Wales are good. White Czar is a white form of the blue Czar; both these are free. There are several violets with a reddish colouring, while *Viola odorata sulphurea*, with curiously yellow brown flowers, is hardly worth winter frame space. Any violet plants left over when making new beds should not go to the rubbish heap, but be planted out in the shrubbery and woodland. If in fair soil, they will afford spring flowers more welcome than those of dog's mercury and ground ivy.

PLANTS UNDER GLASS

“ Another Flora here of bolder hues,
And richer sweets.”

CONSERVATORIES merely devoted to plants in blossom may be of any style, but if the plants have to grow and flower in one house it is necessary for success to have a low roofed structure, well exposed to light. Where means are at hand to have several houses, the principal and more ornate one could be used as a “show” house, while the others for growing plants in could be cheaply constructed, low-roofed pits, covering at least twice the extent of the display house.

It is difficult to have plants at their best when “everything” has to be grown and planted in one house, and that perhaps an ill-lighted, high-fronted structure. Visitors to large nurseries are often struck with the beauty that hothouse flowers display when grown *en masse*, or on the “one plant to one house” system. Usually the houses in which they are found are erected in the most economical way, yet the pureness of effect is often felt to counterbalance the variety of the mixed bench or stage. Where opportunity exists, such plants as tree carnations, begonias, Chinese primulas, and cyclamen, each deserve a house to themselves. Usually if one house is devoted to one genus of plants, it is an orchid house. A house devoted to a mixed collection of these is a mistake, for they are much better suited if distributed between the stove, intermediate, and cooler house, as their kind and state of growth demands.

The winter temperature of the various houses should be :—Stove, 70-65 degrees ; intermediate house (the cool stove or warm greenhouse), 65-60 degrees ; greenhouse, 60-55 degrees. The lower figure is the night temperature.

Watering and ventilation must be most carefully seen to in winter. Unfortunately, more damping down of the floors and stages than is good for flowers has to be done, as the evil of two little piping for a house is still common. A large extent of piping, moderately heated, is far better than a lesser amount violently heated. In the latter case the air is much dried, and much moisture is condensed on the glass, causing drip, and an arid atmosphere, which is most injurious to plants.

GROWTH

The future strength of the plants depends greatly on the strength of the cuttings, and plants producing them should be placed near the glass. When plants after flowering are grown on for another year, their shoots should be shortened before they are placed in more heat. When the buds start, shake the roots out of the old soil, and put into pots as small as possible. Subsequently both rooted cuttings and older plants will require repotting, while those that do well with outdoor treatment in summer should be inured to a cooler house before they are plunged in open beds or placed in cold frames.

Many plants require pinching. The first check should be given before the first repotting after starting. In the case of those plants frequently stopped, as bouvardias, zonals, etc., pinching should cease two months before flowers are required. All flower buds that appear before six weeks ere flowers are wished should be pinched out. This applies to plants like the above-mentioned and begonias. Plants that show flower too early may be retarded by being placed in a cooler temperature.

All plants in flower may be kept in either the intermediate or the greenhouse. A stove temperature is unnecessary for any of the plants mentioned in this book, *when in flower*. Many palms and good foliage plants require a stove house, however, in winter.

Plants in flower should not be watered overhead. The water used at the roots should be stored in the house, so that it is warmed.

Amateurs who have but little regular time to devote to watering, and growers of large quantities, find that an effective way of dealing with such plants as bouvardias, chrysanthemums, salvias, etc., is to plant out in early June in open borders, and carefully lift late in September, putting them into pots, or in the last-named class of growers, into boxes, or plant on the benches under glass.

Even Chinese primulas, cyclamen, etc., may be treated thus, setting these, however, in beds of soil in a north frame; but a better way is to plunge the pots up to their rims in ashes or soil. These methods lessen watering.

At the Royal Botanic Garden, an extensive scheme of planting out permanently was lately adopted, which was carried out with much success by Mr R. L. Harrow, the present Head Gardener. As regards winter flowering plants, this system does not work well with all, some growing far too rankly, and becoming much less manageable than when in pots. Exceptions are noted further on, and there are others. For instance, a little-grown but very beautiful greenhouse shrub, with tubular red flowers—the *Dermatobotrys Saundersiæ*—naturally epiphytic, thrives better in a bed of soil than in pots. *Bilbergia* and allied plants are far more ornamental on a stone rockery than under pot culture. Many of these plants are ornamental in flower or foliage during winter, and are worthy of specialisation.

OF NOTABLE RACES OF WINTER FLOWERING PLANTS

BEGONIAS

THE dominant species in the production of the winter flowering race has been the notable *Begonia socotrana*, discovered by Professor I. Bayley Balfour, of Edinburgh. This winter flowering species has peltate or umbrella-shaped leaves and erect stems, bearing numerous large, showy, pink flowers. Its culture is easy, but it requires peculiar treatment. From the middle of August to October, three batches of the clusters of small tubers should be potted up and placed in a warm greenhouse or stove. The earliest started plants will flower in December; the others follow. Soon after the foliage fades, water must be gradually diminished, and the plants kept dry until the time of starting afresh. The most popular hybrid that has arisen from this Socotran species is Gloire de Lorraine (*B. Dregii* \times *B. socotrana*), remarkable for its neat habit, and the bright pink colouring of the very numerous flowers. Several colour forms exist, such as Turnford Hall, with white or pale rose blossoms, and the difficult-to-do, white-flowered Caledonia.

It is important to raise a fresh stock of plants annually. After the flowering shoots are cut off, a number of young growths will spring from the base, and these, when 2 to 3 inches long, are suitable for cuttings: the ends of the flowering shoots are not usually suitable. The cuttings (taken from February to April) may be inserted in the fibre of a warm propagating case, or singly into

thumb pots, or round the sides of larger ones, plunged therein. Those taken early will, given intermediate temperature throughout the season, fill 8-inch pots by winter; those taken in April make, with similar treatment, handy little plants in 5-inch pots. Still smaller plants are often useful for tables, etc. Another mode of propagation may be resorted to where a large quantity is required from a few plants. Large healthy leaves may be dibbled in by their stalks into the cocoanut fibre of the warmest case, and in a few weeks these will send up shoots, and send down roots, when they may be taken out and potted singly. To procure similar results to those put in as shoots, leaves should go in six weeks or so in advance of the former.

Throughout the summer growth, a position in a moist intermediate or even warmer house, slightly shaded, is most suitable. For potting on as required, a compost of 2 parts loam and 1 part leaf mould, peat, and a little fine brick rubbish may be used. But one sees good plants in different soils. The smaller plants only require one stake each, slinging the side shoots; the large plants require several. Those plants intended for suspended baskets may be grown in pots with the rest, until showing flower, when they may be transferred carefully to the former, and their shoots allowed to fall.

Watering twice a week with dilute manure water (Clay's Fertiliser) is beneficial.

Grown in cooler houses, or in frames, the foliage is often of a poor colour. Quick growth produces plants with less tendency to "rust." Flower buds produced in summer should be pinched out when seen.

The succession of flowers produced by these begonias is remarkable, plants commencing to bloom in November having continued up to April. When in flower these and other begonias may go with the Chinese primroses, etc., in the greenhouse, but an intermediate house suits

them better. Cut and associated with light fern, etc., the flowers are very attractive.

A large number of beautiful varieties of begonias have been introduced to gardens by Messrs Veitch, of Chelsea. These are very brilliant plants, and in some the influence of their Socotran pedigree is apparent. Especially is this so with Winter Gem, which, like *B. socotrana*, can only be propagated by means of the tubers. Mrs Heal (very fine), Adonis, John Heal, etc., are hybrids between *B. socotrana* and summer flowering tuberous forms. They have flowers of various shades of rose, and are propagated by cuttings taken late in May.

A special note must also be made of Gloire de Sceaux, with bronzy-purple large leaves, and pale pink flowers.

Fine plants are produced from cuttings struck early in June. If plants are desired in flower at Christmas, they should be kept in a stove in autumn. The fine coloured foliage is, however, a great ornament before flowers.

B. Froebeli and its hybrid *incomparabilis* have bright scarlet flowers, but they are not produced over many weeks, hence are not amongst those most popular.

B. semperflorens and its variety *gigantea rosea* can be grown in a cooler house than the others.

The old *B. manicata* is unlike others. It may be grown in small pots, when its stem should not be pinched or planted out; it forms a succulent light green leaved shrub if the shoots are occasionally checked. The flowers are pale pink, very small, but so numerous as to give a "London Pride" effect. Other winter flowering plants in this important group of plants are *Digswelliana*, *Dregii*, *Ingramii*, *Weltoniensis*, and *Knowsleyana*.

The following species, etc., of begonia should be in every collection for their finely coloured leaves. They remain in good condition all the year round, if the shoots

are pinched three times annually. They should, however, be propagated so that a fresh supply is ready when the older plants become shabby. *Albopicta*, *Bowringiana*, *diadema*, *erecta multiflora*, *incarnata purpurea*, *incarnata* "Arthur Mallét" (very fine), *venosa*. The specially good *sanguinea* and *Haageana*, both of a warm red colour, grow into remarkably handsome specimens if fed with weak manure water, and the older shoots cut out now and then to be replaced with younger pushing ones. Several varieties of *Rex*, such as Winter Perfection, Silver Grey, etc., are good winter leaved plants.

B. Limningi and *B. foliosa* are useful basket plants—for flowers and green foliage.

CHINESE PRIMROSES

Of these delightful and fragrant plants, the rosy red and crimson flowered varieties are best for greenhouse benches and also for table use, the colours being so effective on dull days and by artificial light. The double white is very useful for supplying cut flowers. A mixed packet of a good strain will yield many good plants. Sow twice—end of April and second week of May—in pans or pots filled with equal parts loam and leaf mould, without lump, and on the firm prepared surface, covering the seed with a sprinkling of silver sand just thick enough to hide. Press the sand slightly, and stand the pots in a greenhouse, shading them from sunshine. Like most seedling primroses, the seedlings will not rise together, but directly a few are large enough to get hold of, prick them round the edges of pans filled with compost well firmed with the fingers. A suitable place for them during the next two weeks will be a propagating case, provided air can be given. Afterwards place on shelves sheltered from strong light.

When the leaves spread through one another, trans-

plant each seedling separately into a 2-inch pot, using a soil of best loam and leaf mould, not so finely divided as before, and pot lightly with the fingers, giving the pot a few sharp raps on the potting bench, which will sufficiently consolidate the soil. When these pots are well filled with roots, transfer to 4 inch, keeping them on shelves up to early July, when they may be placed in frames, preferably with a north aspect. The lights should be closed in wet weather or when cold winds blow.

Towards the end of September remove the plants from the summer frames on to greenhouse benches or shelves, as near the glass as possible, which of course should be unobscured.

The flowering state of these primroses should not, if raised as above, be reached ere January, but if the plant show flower before the required time, the buds should be picked out, although this is unfortunate, as the first central truss on vigorous plants is often very fine.

Premature flowering is often occasioned by checks, such as draught, starvation, insufficient or delayed re-potting. A good Chinese primrose will show a handsome rosette of foliage, spreading much beyond the pot rim, and a succession of sturdy spikes requiring no stakes. Shaky, or toppling plants, are the result of improper potting—the soil should always come up to the collar or neck.

Weekly doses of clear liquid manure should be given when the plants are established in their flowering pots.

The *Stellata* group is a newer creation, or rather selection, of the Chinese primrose, in which the flowers are borne in looser and longer spikes. They produce a pleasing variation, and by some are preferred to the stiffer and more compact types.

The above are perennials, but a fresh annual raising

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of vigorous plants being desirable, the plants after flowering are frequently thrown away. *Primula obconica*, however, is often divided, and grows on year after year. It is one of the most useful greenhouse flowers, as it flowers so continuously. The new forms show rosy tones, the normal colour is mauve. When desired specially for winter flowering, all produced during summer should be nipped out, as with *P. floribunda*, easily raised from seed, and with bright yellow flowers.

P. verticillata has taller spikes of cowslip-scented flowers. The plants should be raised in the preceding year. A hybrid between the two last, *P. kewensis*, is a successful combination of the finer qualities of both parents. These primroses are among the best of winter plants. They flower profusely and take up but little space. The pretty miniature *P. Forbesii*, with lilac flowers, should be raised annually from spring sown seed.

CYCLAMEN

There are several strains, amongst which are the giant flowered, less free than the normal, and the butterfly type, with the petals crested. Cyclamen are near relatives of Primula; like them the seed growth is slow, and the seedlings prone to damp off if not carefully nursed in infancy. Dibble the seed $\frac{1}{4}$ inch deep and $\frac{3}{4}$ inch apart in pans of soil during August, and in a temperature of 65 degrees. In February pot off the seedlings into 2-inch pots, only half burying the bulb (corm). Afterwards pot on as required, and place out exactly as for primulas. Faded flowers, and those gathered, should be pulled rather than cut out. After flowering, if to be kept for another year, do not dry off, but place in frame. Young plants often produce a greater quantity of flower in a pot of given size. Pick off all flowers that appear before winter.

TREE AND WINTER FLOWERING CARNATIONS

The popular name "tree" refers to the freely branching flower stems. In February propagate by cuttings 4 inches or so long, and insert round the side of pots filled with sandy soil. Place in a close propagating case; when rooted transfer to 3-inch pots, using four parts loam to one of leaf mould, with some coarse sand and a little wood ash, and harden off, for the plants do best in a cool greenhouse once they are well struck. In June plunge the pots in the open ground after potting them into 5-inch pots, and pinching the top of the shoots, which may be their flowering ones, or if well filled with roots they may be again repotted into 7-inch pots. During the summer, several alternate sprinklings of bone manure and salt are good. In September remove the pots from the ground into a cool greenhouse. A temperature of from 50 to 55 degrees is suitable. Stake the shoots carefully, and if very fine flowers are wished, disbud. These and all other carnations dislike to be crowded, or shaded by other plants; they require plenty of ventilation, and all the sun possible that can come through clean glass. On dull days, with muggy weather, it is better to have heat on and ventilation also, rather than close the house and keep the air at a standstill. Greenfly must be immediately destroyed by mild fumigations.

Winter Scarlet, Winter Cheer, Yuletide, all scarlet; Miss Joliffe, pale pink; Uriah Pike, clove-scented, crimson; Niphetos, white, scented; Duchess Consuelo, yellow; Mrs Leopold de Rothschild, salmon pink; and Mrs T. W. Lawson, rosy pink, are good.

The marguerite carnations are charming for their laced, less formal flowers. Sow seed, instead of setting cuttings, and treat afterwards as above. They require a similar temperature in winter. Tree carnations may

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also be grown from seed, and good plants are frequently the result.

JAVA RHODODENDRONS

These are hybrids and cross-breeds. The species used were *R. javanicum*, *R. jasminiflorum*, and *R. multicolor*, and from the first-named this group is sometimes known as the "Javanese race." They are beautiful evergreen shrubs raised by Messrs J. Veitch, of Chelsea, and differ from the Himalayan and other spring flowers, rhododendrons of the cool greenhouse, in that their flowers are smaller, of more beautiful and extended colouring, and produced over a far greater part of the year. With a dozen or so of plants, one is seldom without flowers. Scentless, but running through so many exquisite shades of orange, rose, and red, these are most useful for choice bouquets when detached singly from the shoots and wired. The double varieties, fewer in number than the single forms, are known in gardens as *R. balsaminaeflorum*, and owe their origin to the seed produced by a casual semi-double flower, fertilised by its own pollen, by Mr Head.

Their blooms last nearly twice the time of the singles, and are charming button-hole material. These Java rhododendrons also require more warmth than the usual kinds. An intermediate house is necessary, and in a moist atmosphere the plants remain clean and bright. This is all the more necessary, as the plants cannot well be syringed when in flower. All the light possible is required in winter, and only a slight shading in summer sunshine. During that season the plants are not hurt with the temperature of ordinary greenhouses, but they are best in a warmed one. It is a good plan to obtain a few fresh plants annually, so that a succession of young plants is always at hand. Potting, if necessary, should

be done in spring, using good peat and rough silver sand. Planted out in beds in the intermediate house, these plants do well provided that plenty of light is obtainable. Nine inches of peaty soil resting on turves grass side downwards, over a 6-inch layer of broken brick, ashes, etc., form a suitable bed; or they will do well in a bed of loam, if three or four spadefuls of fine sandy peat is placed around each ball when planting. Top dressings should be added as the soil sinks. Of course the larger plants look best thus, and appear to better advantage if looked down upon rather than at eye-level. Thus low houses and beds on the floor-level are best.

The neat, smooth, evergreen foliage of these rhododendrons is not injured by the fogs of cities, as are the hairy leaves of several cool-house species, also azaleas.

OF SEVERAL ORCHIDS, AND ORNAMENTAL FRUITED, DECORATIVE FOLIAGED, AND RAFTER, PILLAR, AND BASKET PLANTS

THE number of orchids during winter is legion, and in a few paragraphs little can be done to extol their glory or describe minutiae of culture, etc.

The flowering season of an orchid is not a critical time for the plant. During this period shoot and root growth is nearly arrested, and therefore orchids in flower may be placed almost anywhere, but preferably in a house where the temperature does not fall below 50 degrees. Some orchids, however, like the beautiful *Calanthe Veitchii* and its kin, produce long spikes of flower, the flowers opening in succession up the stem. In such cases a warm greenhouse temperature is required to cause the expansion of all the flower-buds. A similar warmth is required by evergreen stove orchids, in which category many cypripediums must be placed.

Those who have a stove, a warm or intermediate house, and a greenhouse, could grow most obtainable orchids, did space permit. These plants delight in the company of other plants, and as they are best in a cooler temperature when blooming, it is easy to move them from house to house as required.

The best Christmas orchid is *Laelia anceps*, with flowers long lasting, fragrant, and not too large or too small (3 or 4 inches across). There are numerous varieties, but most are rosy, with a deep-coloured crimson-purple lip. The variety *Dawsoni*, with pure white petals, is

very fine, so is *alba*, all white with the exception of a few yellow streaks. There are other fine species of *Laelia*, among them *L. autumnalis*, with rosy, perfumed flowers; *L. albida*, also fragrant, but pale flowered. Of all these there are many varieties. They do well in pans or baskets, either suspended or placed on the stage of the warm greenhouse. When in growth they require plenty of water, but in winter none.

Arching spikes of bright rose flowers are produced by *Calanthe Veitchii*, one of the loveliest of hybrids. Each spike carries from two to three dozen flowers, self-coloured save for the white throat. Pot afresh every year as the young growths shoot, using a compost of loam and well decayed manure, and keep in the hottest part of the house, not shaded, and water twice a week with very weak manure. Until the bulbs cease swelling, and the leaves commence fading, must be diminished and stopped, and kept perfectly dry until the flower spikes appear, when the plants will require watering once every ten days. The beautiful varieties of *C. vestita* associate well with the above, but none of this genus are of use in smoky towns, for the fogs, etc., quickly destroy. As there are no leaves during the flowering season, ferns should be grouped with *Calanthes*. When plentiful, the cut spikes of these orchids are most acceptable for dinner-table decoration in slender vases, epergnes, for the stems are well covered with flowers and buds throughout their length. Many amateurs, and not a few gardeners, devote valuable space over scores of things much less beautiful and free flowering than the above plants.

Several Cattleyas, with their magnificent rose flowers, bloom in winter, among them *C. labiata Percivaliana* and *C. b. Trianaei*. They require *Laelia* treatment.

The fine *Coelogyne cristata* is an evergreen species, but should be kept perfectly dry during winter, until

the young growths appear. The crisped petals are pure white, and in the normal form the lip is orange blotched, in the variety *Lemoniana* lemon, and in *alba* entirely white. They are all orchids of high merit which should be grown in a moist atmosphere in summer and well watered, and left alone for several years, merely top dressing, not repotting. Two at least of the so-called Indian crocuses should be grown—*C. lagenaria* and *C. Wallichiana*—both often met with under the name of *Pleione*. The pseudo-bulbs should be placed thickly in pans, and put into a warm house until the leaves fade, when cooler and dry treatment is required.

The Lady's Slipper (*Cypripedium insigne*) requires a compost of peat and loam, but must not be kept dry at any time. It is the best known of the warm greenhouse Lady's Slipper orchids, and its greenish yellowish flowers remain fresh for many weeks. The colour of the normal type resembles too closely that of the frog for the writer's liking. In the variety *Maulei* the upper sepal is white, and this and a clearer colouring over the rest of the flowers improve it wonderfully. The varieties *Sanderæ*, *albo-marginatum* and *montanum* are attractive. *C. Leeatum*, a hybrid between *C. insigne* and *C. Spicerianum*, is useful, and likes a warmer house (stove) than *C. insigne*.

The very fragrant *Cymbidium eburneum*, like the rest of its genus, has very ornamental, bright evergreen, sword-shaped leaves, that set off the large, waxy, pure white, very fragrant flowers to advantage. Usually flowers in February. Grow in peat and loam in an intermediate house, and never keep dry.

Of Dendrobiums the best winter flowering species is *D. aureum*, with very fragrant December and January flowers. The petals are yellow, the lip velvety brown. *D. enosmum* var. *delicata*, *D. Cassiope*, *D. endocharis*, and others, are beautiful hybrids flowering early in the year. They take up little room. Small plants

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are best grown in peat, put in as small pans as possible, and suspended in the hottest house, and kept moist from the time the young shoots start to when the stems are fully plumped up, when watering should gradually cease and the plants placed in a greenhouse fully exposed to sun.

Odontoglossum pulchellum has pure white, small, but very fragrant flowers, on spikes 18 inches high, accompanied by graceful grassy-looking foliage. Very useful and, like *O. Rossi majus*, another useful greenhouse orchid, should not be dried at any season.

The scarlet *Sophranitis grandiflora* is best grown in small hanging baskets or pans, which should be hardly bigger than the plants, which are dwarf and evergreen, and require watering at all seasons. The highly-coloured flowers, 3 inches across, of this warm greenhouse plant, are very effective in winter. The most curiously coloured of popularly grown orchids is

Zygopetalum Mackayi, with spikes a couple of feet or so in height, the flowers showing a singular combination of yellowish-green, brown, and purple. When growing, a warm greenhouse is suitable; give but little water when at rest. Is a strong growing orchid, requiring a compost of turfy loam and peat. Its flowering season is often uncertain and variable.

Other useful orchids are *Masdevallia towarensis*, with curious and profuse white flowers, thrives under *Odontoglossum* treatment, and is useful for variety. *Stenoglottis longifolia*, and its white-flowered form, are handsome orchids, requiring loam, frequent watering throughout the year, and a warm greenhouse.

ORNAMENTAL FRUITED GREENHOUSE PLANTS

The Otaheite orange is the finest of these. Plants can be obtained in autumn, well set with small fruit, and

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should be only procured in this state. They are not eatable, but remaining on for many months, are so ornamental that it is worth while to procure new plants every year, as in an ordinary greenhouse it is not possible to grow them well.

Solanum Capsicastrum and *S. Pseudo-capsicum* are very effective little shrubs, when laden with the scarlet fruit each half inch or so in diameter. Raise and pinch, etc., as bouvardias. *Solanum integrifolium* has corrugated tomato-like fruits. Sow seed in April, in heat, and plunge in the open from June to September, pinching the stem once to obtain a bushy habit.

Psychotria chontalensis and *P. cyanococca* are stove plants, with numerous small, fine blue fruits in bunches.

Callicarpa purpurea is a warm greenhouse shrub, with stems well surrounded with bead-like purple berries. Any remaining branches of last year should be strongly cut back in spring, else the plant is very straggling.

Rivina humilis requires stove treatment. Propagate by seeds or cuttings early in the year, and pinch to obtain branched plants. The berries are bright red, and in *aurantiaca*, orange.

Ardisia crenulata, with *Skimnia*-like red berries and neat evergreen leaves, is effective many months.

FOLIAGE PLANTS

The following thrive best in a warm house, and are very beautiful in winter. When the plants become leggy or shabby they must be propagated afresh.

Dracaena Victoria, broad leaves margined with yellow, scarce; *D. Sanderiae*, many others; crotons, many; *Pandanus Veitchii*, palms many (including the beautiful *Cocos Weddeliana*), *Panax Victoriae*, *P. Balfouri*; *Evodia elegans*, *Eugenia myriophylla* (a fine leaved, little known plant, good); *Ficus Parcelli*, *Abutilon Swartzii*, *Hibiscus*



PLANTS WITH BEAUTIFUL FOLIAGE

- | | |
|-------------------|------------------|
| <i>Pandanus</i> | <i>Dracaena</i> |
| <i>Victoriae</i> | <i>Variegata</i> |
| <i>Dracaena</i> | <i>Ficus</i> |
| <i>Victoriae</i> | <i>Radiata</i> |
| <i>Dracaena</i> | <i>Variegata</i> |
| <i>Sanderiana</i> | |

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Cooperi. *Alpinia Sanderae* Begonias (see page 60). *Asparagus Sprengeri variegata*. The following are small:—*Ficus radicans variegata*, *Bertolonia Van Houttei*, *Panicum variegatum*, etc.

Gynura aurantiaca, frequently propagated, is very striking for its leaves, which are densely covered with violet hairs. The flowers are orange.

RAFTER AND PILLAR PLANTS

The best plant for covering the roof of an intermediate or warm conservatory or stove is *Begonia President Carnot*, a hybrid. The growth is robust, and the large rose carmine flowers occur in clusters, 6 to 12 inches wide. The leaves, which are bright green, tinged with red, measure even on young plants, 7 inches across.

The beauty of *Gloire de Lorraine* rests entirely in the male flowers, for the females are seldom produced. In *President Carnot* both occur, but the last named are by far the most effective. Pot plants of summer rooted shoots may be had in flower during winter, but thus grown only a glimmer of its beauty is realised. To obtain it at its best a space of 30 square feet should be allowed it, training the shoots to wires attached 12 inches from the glass. A wooden or slate box, 18 inches long, 12 inches wide, and 8 inches deep, with or without a bottom, stood at the back of, but on the bench, is the best receptacle in which to plant, using a compost of loam, leaf mould, and peat in turfy lumps, adding to this some smashed brick. The advantage of such planting is, that after the roots have filled the box they will spread all over the surface of the wooden or stone bench, which should be gravel surfaced, and no better rooting place could be found for this and all the other roof plants to be presently mentioned. In some houses it may be possible to plant on the floor

level in a bed of prepared soil behind the pipes, but such situations are not so satisfactory as the above, as they are more or less out of sight, and watering is required less often, and the proximity of the hot-water pipes may be injurious to the plants. If they are 6 or more inches away, there is usually no danger.

The leading shoot of a newly planted begonia should be pinched when it reaches the wires. This will result in the throwing out of a number of side shoots, which will be tied equally over the space to be covered. Once headway is made, many of the shoots will have to be picked off to prevent too dense a growth. A good plant will last several years, as there will be plenty of young fresh shoots that, from time to time, may replace any shabby shoots that have borne much flower, which should be cut out.

B. coccinea, one of the parents of the preceding, is also very fine, and is by some preferred. The leaves are smaller, also the flowers, but the colour is brighter. The same treatment suits it. Both require shading in summer with roof blinds or obscuring, and both weak liquid manures; given such attention they are seldom out of flower.

OTHER CLIMBERS

for an intermediate house are:—*Solanum Seaforthianum*, blue flowered. The side shoots should be allowed to fall. When reaching several feet in length they are very well flowered. Sow in January for next winter. Old plants are not desirable.

Abutilon insigne, with bell-shaped rosy flowers, is good.

Russelia juncea is grown for its bright green rush-like stem, as well as for flowers produced, not in winter.

Manettia luteo-rubra (*bicolor*), with tubular scarlet and yellow flowers, is very suitable for small houses.

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Jacquemontia violacea has blue convolvulus-like flowers.

Clerodendron splendens with intense scarlet flowers, and *Thunbergia laurifolia* with large blue flowers, are best suited for large houses.

Asystasia scandens, *Ipomoea Horsfalliae*, *Corynostylis Hybanthus*, *Clitoria Ternatea* are excellent. *Solanum pensile*, *Allamanda grandiflora*, and *Aristolochia elegans* may also be had in flower during the winter.

GREENHOUSE ROOF PLANTS

comprise the elegant white margined leaved *Cobaea scandens variegata*, grown for its foliage, and *Senecio macroglossus*, with ivy-shaped leaves and yellow flowers. *Tibouchina macrantha floribunda*, with 5-inch purple flowers, is splendid for clothing pillars. *Acacia leprosa*, *juncifolia*, *Riceana*, *dealbata* ("mimosa") and others are suitable for covering pillars. They are evergreen.

BASKET PLANTS

Cool House.—Ivy-leaved Pelargoniums, *Corydalis thalictrifolia*, *Lopezia lineata*, *Lachenalia Nelsoni*, and many bulbs taken out of boxes when in bud and arranged with ferns, etc., in moss.

Warm House—*Achimenes* (started in July), Begonias, *Gloire de Lorraine*, and others (page 60). *Ficus radicans variegata*, ferns, etc. *Asparagus Sprengeri*, *A. S. variegata* and *Panicum*.

OF SOME OTHER USEFUL WINTER FLOWERING SUBJECTS

PLUSH FLOWER

(*Acalypha hispida*).—A remarkable New Guinea plant introduced under the name of *A. Sanderi*. Good plants should be well leaved to the base, and show numerous of the singular red tail or catkin-like spikes, which are 15 to 18 inches long. Strike the tops of the shoots in April, and grow on in a stove or intermediate house, repotting as necessary. Should not be pinched during the first year, but during the second and after years; if treated thus large bush plants may be obtained. Keep in an intermediate house when in flower.

AMASONIAS

The best is *Amasonia calycina*, with red bracts and tubular yellow flowers. The bracts remain bright for many weeks. Strike shoots in early June, and grow on unpinched in the warmest house. Should be far more grown.

APHELANDRAS

Some of these are very brilliant flowers, but they do not last long. Treat as *Jacobinia*.

BORONIAS

Exquisite is the fragrance of the dull red and green bell-flowered *Boronia megastigma*. Well furnished little

specimens may be procured from those who make heaths a speciality. A few plants to flower in January may be hurried on in an intermediate house, placing them to flower in a cool one. There are other species more brilliant, less fragrant. Treatment—see *Erica*.

BOUVARDIAS

are ever useful for cut flowers. Strike cuttings in March, and when well rooted nip the point out. This stopping must be continued, nipping out the points when the shoots have six leaves. Cease this after early September. From the middle of June to the middle of September the pots are best plunged in the open ground, choosing as sunny a spot as possible. Afterwards move to the greenhouse. When flowering ceases, cut the shoots back to an inch of the firmer stems, and if cuttings are not required keep the plants in a cool house until April. Then place in a temperature of 70 degrees, and when the buds break, pot and grow on as before.

The scarlet-flowered Victor Lemoine, Vulcan, President Cleveland, Hogarth flore pleno (double) are excellent for vividness; Purity is fragrant and white; Flava, yellow; and Priory Beauty, pale rose.

BROWALLIAS

Pretty little annuals, easily raised from early July sown seed, or June struck cuttings. Set four plants to a 4-inch pot. During growth pinch three or four times, and keep the plants in a sunny frame or greenhouse. The best is the fine blue *Browallia speciosa major*.

SWAN RIVER DAISY

(*Brachycome iberidifolia*).—Another elegant annual, with blue, dark centred flowers. Sow in late July for flowering in December and onwards in a cool greenhouse.

THE BRUNFELSIA

have very fragrant flowers. Large plants are greatly to be desired, as compact bushes produce a good effect when in flower, owing to the various shades of blue that the flowers pass through ere they fade in an almost white colour. After flowering, which occurs in the early months of the year, cut the flowering shoots back to half their length, repot, and place in a warm temperature. When the young growths have finished growing, and also when in flower, the plants are best kept in a cooler house, for the blooms are quickly shed in the warmest house. Grow *Brunfelsia* (*Francisea*) *calycina*, *B. eximea*, and *B. latifolia*. Satisfactory plants of these take three and four years to produce.

CALCEOLARIAS

The best of the winter flowering section is *Calceolaria Burbidgei*, with small yellow flowers, very freely produced. A capital plant, thriving well under treatment given to zonal pelargoniums. Plants two or three years old are best. *C. deflexa* and *C. fuchsiaeifolia* are also grown for winter flower.

CAMELIAS

These beautiful old shrubs are well known. The varieties are very numerous. Two old time favourites are yet good—*alba plena*, a fine double white, and *Donckelaarii*, a semi-double, with crimson splashed white petals. During summer these plants should be plunged in the open. Remove them in September to a greenhouse. Those plants wished for December flowering should be placed in heat while making their spring growth. Remove in June outdoors, and back under glass in later September.

CANNAS

may be lifted from their summer beds in September, and grown on in pots. Useful winter plants may be had by removing strong offsets and potting in 5-inch pots in September, using rich soil and placing in an intermediate or greenhouse. Foliage as well as flower is ornamental. Instead of planting the crown in early summer, these may be kept at rest until August, when they should be potted up, and kept in an intermediate house for flowers through winter.

THE ROSY-CARMINE

(*Centropogon Lucyanus*) flowers freely under the treatment given for bouvardias. When a succession is needed, from December to March, four batches should be grown. The first lot should be put in in March, and the others a month apart later. The flowers are tubular, a couple of inches in length.

CHRYSANTHEMUMS (WINTER)

Insert cuttings in frames or pots in the middle of March. Keep shaded and sprinkle frequently. When well rooted shift into 4-inch pots, using good loam and well-decayed manure or other good compost. In three weeks pinch the plants, and stand them when frosts are over upon a sunny bit of ground. Shift to 7-inch pots later, pinch again, and plunge in the open. Give clear soot water and other stimulants, varied and weak, from August onwards. These plants require no further tending, and will give a good number of useful flowers, just the thing for January cuttings. It is wholly a matter of choice whether the blooms are disbudded or not. If not, the flowers are numerous but small, and may be crushed. As a rule it is best to lessen the number by removing all except the central bud and

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three or four of the best that surround it. Before frosts, remove the plants to an airy greenhouse. As several weeks, often of dull weather, intervene between the removal and the flowering time, they should not be crowded. Chrysanthemums are ever useful for cutting, the flowers retaining their freshness when in water for a week or more. The following are some very suitable late-flowering varieties. All, or at least most, should be tried, as a variety prevents monotony.

White.—Florence Davis, L. Canning, Mrs W. H. Weeks, Guy Hamilton, Mlle. Thérèse Pankouche, Nivens, Princess Victoria (creamy when freshly open), Snowdrop (a dainty pompon).

Yellow.—Golden Gate, Allman's Yellow, Glory, W. H. Lincoln, King of Plumes, Golden Princess, Market Gold.

Pink.—Mme. Felix Perrin (Framefield Pink), A. J. Balfour, Pink Princess Victoria, Duchess of Edinburgh (bluish-pink Japanese anemone), Ralph Hatton (lilac).

Crimson.—Cullingfordi.

Bronze.—Etoile de Feu, Tancrede Basket, Tuxedo.

Red.—Matthieu Hudson.

CINERARIAS

Treat as Chinese primroses. Decidedly surpassed as *winter flowers* by these and other plants, as begonias, etc.

THE BLUE-FLOWERED COLEUS

(*C. thyrsoideus*).—This is recommended for its blue flowers, and is beautiful in large groups. They are of little use for cutting, as the leaves fade quickly. By pinching June struck cuttings above the second pair of leaves, plants in 6-inch pots, with three or four flowering shoots, may be had for January and February bloom. Frame or greenhouse in summer. An early-flowering

winter plant, with blue flower, is *Daedalacanthus nervosus*, best known as *Eranthemum pulchellum*. *D. macrophyllus* has violet-blue flowers. Persons fond of blue will appreciate these plants, and those who desire winter brilliancy under artificial light will let them alone. The *Eranthemum* is an old favourite, and requires pinching throughout the summer. Intermediate house in winter.

CORYDALIS THALICTRIFOLIA

A good pot or basket plant, with fern-like foliage and yellow flowers. A cool greenhouse is suitable. With much heat the colour becomes much "washed out."

CRASSULA LACTEA

A dwarf succulent, remarkable for its durable white flowers. Treat as *Senecio Galpini*.

WINTER DAPHNES

(*D. indica*) has red fragrant flowers. There is a white variety. Treat as *Camellia*. Housed in the middle of August, they flower during January. *D. odora* and *D. o. Mazeli* are also good.

AUSTRALIAN HEATHS

(*Epacris*).—The flowers of these are very brilliant, and, as they are produced on long stalks, useful for cutting. After flowering, those branches that have borne flowers should be cut down and the plants placed in a warm greenhouse for six weeks, then hardened off in a cool house, and plunged during summer in the open ground. These beautiful greenhouse shrubs like peat soil.

EPIPHYLLUMS

Succulent plants, once very popular, but now surpassed by begonias, which are almost as brilliantly flowered, far more profuse and lasting, and quickly grown. From early March to the end of July require an intermediate temperature; afterwards a rest and dryness until flower, and even then very little moisture is required.

CAPE HEATHS

Erica.—With a few exceptions, these are much less grown than formerly. Young plants well set with flower may be procured at a reasonable rate from nurseries that make a speciality of them. It is well to procure a few thus every autumn, as the plants soon grow out of a useful size. *Erica hyemalis*, *E. h. alba*, and *E. gracilis*, the red heath, are very popular greenhouse flowers in November and December. To keep them back they should be plunged outside until frost threatens.

EUCHARISES

Eucharis grandiflora (*E. amazonica*) is the one principally grown. Repot about April, removing offsets, and potting these separately. Eight of the largest bulbs go into a 9-inch pot, placing them thus with the tops an inch below the surface of the good loam that should be used. Keep in a stove from the end of August to the middle of October, during which time an intermediate house is suitable. By removing in October to a warmer temperature, a free winter flowering is encouraged. *E. Sanderiana*, *E. candida*, require similar treatment. They give good flowers if planted out beneath the plant benches or stages. If these plants are top dressed annually, and manured freely, annual potting may be dispensed with.

EUPATORIUMS

Eupatorium Weinmannianum has sweet white flowers, while those of *E. petiolare* are blush white. Bouvardia treatment. Two distinct species of *Eupatorium* are best known in gardens under the names of *Hebeclinium atrorubens* and *H. ianthinum*—the first the best. It has reddish flowers. These are not unlike an enlarged *Ageratum*. Take cuttings in April, and pinch once, keeping the plants over summer. Old plants should be shaken out and placed in smaller pots, shifting on through the season as required. Both stand well in the greenhouse when in flower, but are not recommended to small growers.

SCARLET SPRAY

(*Euphorbia fulgens*, *E. jacquiniaefolia*).—This is most beautiful when planted out in a bed and trained round the pillars of a warm greenhouse. It does not require peat. As a pillar plant it produces a number of sprays, 1 to 2 feet long, that are elegant for cutting. The brilliant colour—an orange colour—is very effective under artificial light, and thus small pot plants are useful. From the time flowers cease to April, keep the plants dry; afterwards cut the shoots of the older plants back, and water freely. Cuttings 3 to 4 inches long may be taken off with a heel of the older stem. Place three in a 3-inch pot, and place in the warmest cases at hand. When well rooted remove, and shift the three plants into 5-inch pots. From June to September the plants should be grown in a sunny frame or greenhouse. No pinching is required with the plants in their first year, as one spray per plant is best. As the shoots are full of milky sap, it is wise to allow the cuttings to dry at the ends before inserting in pots.

POINSETTIA

(*Euphorbia pulcherrima*), first known in culture by the Americans, and from the States it came into Britain *viâ* the Royal Botanic Garden of Edinburgh. In the Southern States it is one of the gorgeous outdoor features of a Christmastide garden. Here the plant most generally favoured is one annually propagated, and which, grown with a single unpinched stem, will give a gorgeous scarlet rosette from 1 to 2 feet across. They are most effective when stood on the floor, interspersed with palms, ferns, etc.

As the bracts fade, and the leaves yellow, give less water, and in a week or two withhold altogether, placing the plants on a dry greenhouse shelf. In April start the plants in a temperature of 60 degrees or thereabouts, syringing freely. When the shoots are 4 or so inches long, take off with a "heel" and insert in a warm frame. Three weeks will fully decide the fate of these shoots: those rooted should be given air, or they may "damp off." In six weeks after setting the cuttings, the young plants should be ready for 4-inch pots, and a compost of three parts loam to one of leaf mould. In a fortnight they may go into a sun-exposed frame, keeping the sash-lights closed on cold days and at nights. When the roots have worked through the soil, shift into 6-inch pots, this being a good size for flowering plants of moderate size, if plenty of liquid manure is given up to time of flowering. Early in October remove the plants to a warm greenhouse. Care should be taken to keep water off the bracts, as this frequently occasions markings. If heads are cut for decoration, the stalk should be dipped in boiling water a few seconds, to prevent bleeding.

Large specimens may be grown by potting on the old stools, after cutting the stem 3 inches above the roots, instead of taking cuttings and throwing the stumps away.

For fine plants with a dozen stems, 15-inch pots will not be too big to finish with.

SPINY EUPHORBIA

(*E. splendens*).—An ugly plant in pots, but excellent when planted out in a bed of light, sandy soil and brick rubbish, and given a position well exposed to sun, the shoots being tied to a wall. It is more serviceable than many *Cacti*, and as curious as most. The scarlet flowers are freely produced over many months, and are useful for cutting. Sow in a dry or sunny position in stove or intermediate house.

EXACUMS

These are very beautiful, but unfortunately not easily procured, except in one case—*E. affine*, a charming little Socotran plant, introduced by Professor Bayley Balfour. Seed may be obtained from large firms. Some should be sown in March, and some a month later. Sow and grow and flower in intermediate house. When the seedlings are $\frac{1}{2}$ inch high, prick them off in pans, using any light soil, and later transfer them singly to 3 or $3\frac{1}{2}$ inch pots. If preferred, a dozen plants or so could go into a shallow pan. The habit of this pretty annual is good, and the shoots require no pinching to keep them neat. The flowers have lilac-blue petals and yellow anthers, and are very sweetly scented. *Exacum affine* has the points of a good winter flowering plant. It is neat, easily grown, and brightly coloured. From the sowings suggested above, plants flowering from December to March will be obtained. The allied *E. Forbesii* is unfortunately lost to cultivation. *E. macranthum* (blue-purple) and *E. zeylanicum* (violet) have much larger flowers, and well grown are very fine. Treat as *E. affine*, giving, however, more space.

CAPE JESSAMINE

(*Gardenia florida*), of which the double form is most grown. These were once more fashionable flowers than now, their fall having been occasioned by the penny blooms hawked so largely in the London streets. Popularly it is the "Cape Jessamine," but is really a Chinese plant, from which in Britain flowers may be had throughout the year if a stove is obtainable. Cuttings, rooted in the early weeks of the year, may be grown on in a stove to provide flowers next Christmas. Potted as required, and shoots stopped, good bushy plants may be produced. This *Gardenia* is not unseldom seen in a filthy state, as, unless the plants are freely syringed, mealy bug will speedily spread and ruin. Two-year-old plants are good; after their young growths are made they may be placed in a cooler house for a month or two, removing them to more warmth in September for flower at Christmas and after. Old plants of *Gardenia* should not be kept for ever planted out in a stove bed; they often fail to produce the same number of flowers per square foot as do younger plants.

HELIOTROPE

(*Heliotropium*).—For good winter plants, treat as Zonal Pelargoniums.

VIOLET CRESS

(*Ionopsidium acaule*).—A tiny annual, a few inches high, with a profusion of small violet flowers during winter, if seed is sown in small pots or pans at the end of July and once or twice in August. Keep outside until frost threatens, then remove to the coolest portion of the greenhouse.

JACOBINIAS

The flowers of these are crowded together at the termination of the stems, consequently cuttings rooted in April should only be pinched once, this usually giving three or four leads to plants in 5-inch pots. Cuttings taken late in June should not be pinched at all; each will give a good head of flowers in a small pot. Of the several species, *J. chrysostephana*, with bright yellow flowers and dark green leaves, is the best. *J. coccinea* and *J. Ghiesbreghtiana* have scarlet flowers. Intermediate house.

WINTER JASMINE

(*Jasminum*).—The flowers of the beautiful *J. gracillimum* resemble those of the common jasmine, but the petals are nine in number, not four or five. In May all the flowering shoots should be cut down to within an inch of the older wood, and the plants shaken out of the old soil, repotted, and placed in the warmest house at hand. During summer the shoots should be occasionally pinched to encourage a bushy growth and prevent the plants flowering. This species is superior to the old *J. Sambac*. Jasmine flowers drop too freely, hence they are not largely grown, as fragrant white flowers are yielded by several well-known forced plants. Intermediate house when in flower.

LIBONIAS

Old plants, often badly grown, bring these useful subjects into disrepute. In February cuttings of shoots $1\frac{1}{2}$ inches or so long should be struck in a warm case, the plants afterwards treated as bouvardias, only that a greenhouse or frame treatment should be given in summer. Small well-flowered one-year-old plants of

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Libonia floribunda are very useful for table decoration, as the small tubular flowers, scarlet, tipped with yellow, are effective under artificial light. *Libonia Penrhosiensis* has crimson flowers. The plants may be grown over several years if the shoots are shortened in spring. With a small batch, plants may be had in flower from Christmas to March. Great care is needful in watering during this period, otherwise the leaves will fall.

LINDENBERGIA GRANDIFLORA

Warm greenhouse shrubby plant, with many bright yellow *Mimulus*-like flowers. Pinch the shoots occasionally to keep the plants in shape.

LUCULIAS

Both *Luculia gratissima* and *L. Pinceana* are fine shrubs, with rose-coloured fragrant flowers in large globular clusters. The flowering shoots should be cut hard back to the older wood in March, and the plants placed in a warm greenhouse to start. In summer they are best outside. No summer pinching is required. Flower in December. Well suited for training on a greenhouse wall, but the flowers are soon over.

MARGUERITES

By striking the tops of the shoots in July and potting into 5-inch pots, pinching the shoots twice and nipping out flower buds, nice little plants may be had for flower from November till February. Grow outside until frost. The blue marguerite (*Agathaea coelestis*) may be treated in the same way.

MIGNONETTE

Early in July fill 5-inch pots with loam, mixed with a little mortar rubbish. Sow a dozen seeds on the surface,

just cover. Of the resulting seedlings, all but the three finest must be pulled out. Mignonette is often stood in the open until frost, but it is better in a frame, where the drenching rains of late summer may be kept off. Poor soil, draught, and not thinning in time all tend to failure. With the colder nights of October, remove from the frame to greenhouse. Give plenty of air and water carefully. The giant and the so-called white varieties are useful for pot work.

MYOSOTIS

Special pot strains are obtainable, seed of which sown in June in frames will produce charming pots of forget-me-nots at Christmas. Sow some also in early July for later transfer to greenhouse. For cut flowers they may be grown in boxes.

ZONAL PELARGONIUMS

For small winter-flowering plants, strike cuttings in February, and pot as roots fill, using 6-inch pots at the finish. Each shoot should be kept pinched above the third joint, and every flower pinched during summer. Cease stopping the shoots at the middle of August. From June to September the plants should be kept outside. Remove them before frost, and rather than crowd, throw some away. The plants will flower from November to spring.

Large stuff in 8-inch pots may be had in the second year if the above plants are cut down to the first stem in April, shaken out, put in 5-inch pots, and afterwards pinched and shifted on into larger pots.

The crimson scarlet Improved Raspail and Gustave Emich are very bright, and will be in every selection. Several pelargoniums are grown for their pleasantly

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scented leaves—among them is Lady Plymouth, an elegant white variegated variety.

PLUMBAGO ROSEA

Of this, the variety *coccinea* is brighter and better. Treat as Gloire de Lorraine begonia, but stop the shoots once. Two batches of this should be grown, potting up one lot in April, the second in June. The long slender spikes are very beautiful, but will hardly do for cutting, as the brilliant rose-scarlet flowers are fragile. The stems should not be removed when the first lot of flowers fade, for they usually break in flower again.

REINWARDTIAS

Reinwardtia trigynum has very effective orange-yellow flowers over 2 inches across, while *R. tetragynum*, less useful perhaps, has bright primrose-yellow flowers. Strong young plants are essential. Treat as Bouvardias.

The flowers are fugacious, but are numerous.

CALLA OR ARUM LILY

(*Richardia africana*).—During July divide the plants and pot them in rich loam. Stand outdoors until October, removing them to an intermediate house. Give abundance of water, both pure and manured. They will then produce flowers throughout the winter. Little Gem, a dwarf variety, but well-sized in flowers, is good.

SCARLET RONDELETIA

(*R. odorata major*).—Planted out in a stove this often flowers in early autumn, but if pot plants are removed from hence to an intermediate house from June to October,

the fragrant bright-scarlet flowers of this rather slow-growing shrub will be produced in December.

SAINTPAULIA

A dwarf plant with small violet-coloured flowers. For winter plants, sow seed in the middle of May, and give stove treatment in summer. When in flower, keep in an intermediate house. There are several colour forms.

SALVIAS

Salvia splendens and its varieties such as Triumph, Glory of Stuttgart, Splendissimum (!), are scarlet-flowered and scarlet-bracted. Plants for December and January should be inserted as cuttings in the middle of June, and all the shoots up to the commencement of September should be pinched above the third joint. Keep in greenhouse when in flower and when in summer growth, unless the locality is warm, then outdoors up to September.

S. Heerii, scarlet, *S. involucrata Bethellii*, rose-crimson, *S. rutilans*, scarlet, scented foliage, are all well worth growing, but two or three years old plants are better than those younger.

Salvia flowers soon drop when cut. Plants are not seldom seen destitute of their lower leaves. This may be caused by neglect of watering, but quite as likely by starvation. Pot plants are useful for decoration, and associate well with foliage plants or with cut branches of hardy evergreens.

SCHIZANTHUS WISETONENSIS

This delightful annual should be sown in early June for winter work, the plants flowering in 5-inch pots.

Place seed pots in cool greenhouse, and prick off and repot carefully—one plant per pot. If crowded in shoot or root, poor plants and flowers produced before a wanted time will be the result.

SENECIO GALPINI

A dwarf succulent, with heads of showy orange flowers—a colour that is much wanted among winter flowering plants. Pot in early April, or take cuttings, allowing these to lie a day on a dry bench before inserting. Place the cutting pots on a shelf in the warm house, and water sparingly. Do not pinch the shoots of cuttings if flower is wanted the same year. Good batches of this plant are attractive when intermixed with *Crassula lactea*.

STOCKS (WINTER)

A good deal depends on the seed: only the best varieties procurable should be obtained. Sow in June, and keep in frames till October, potting as required. Winter in greenhouse. Very fragrant and useful for cut flower as well as for long flowering pot plants.

SCARLET CHAIN FLOWER

(*Thyrsacanthus Schomburgkianus*, *T. rutilans*).—Before the advent of *Acalypha hispida* this was the only plant producing drooping red winter flowers. In the *Thyrsacanthus* these are sometimes 18 inches in length, and to display these well the plants should be elevated above the rest of the bench plants. Propagate every year in May, and grow three plants together in a 5-inch pot. A stove or an intermediate house is required in summer and winter, but the latter house is quite warm enough when in flower.

OTHERS

Those who care for *Hippeastrums* and *Gloxinias* in winter may have them by starting bulbs of the former in autumn instead of in winter, and by sowing *Gloxinia* seed in June. *Rebmannia*, if desired in winter flower, should be rooted from strong June cuttings or early spring-sown seed. Plant these, when rooted, in the open until the middle of September; when potted they go into the greenhouse. *Moschosma riparium*, treat as *Centropogon*. Several *Kalanchoes* are suitable if June cuttings are taken and the plants grown on in a warm house. Likewise *Clerodendron unfortunatum*, with scarlet flowers—always a useful colour in winter. *Scutellaria Mociniana*, *Mussaenda*, *Crossandra* should, for small pot plants in winter, be struck in May, afterwards pinching the points of the shoots out twice and growing in a warm house. *Pentas*, *Strobilanthes Dyeriana*, and *Whitfieldia laterita* are useful for large collections when treated in the above way. Various species of *Grevillea*, *Monochaetum*, *Eriostemon*, *Correa* are good, hard-wooded, cool, greenhouse winter flowering plants. The varieties of *Tropaeolum Lobbianum* were once widely grown as winter plants. Almost all annuals might be used. And so on, *ad indefinitum*.

FORCED FLOWERS

PLANTS hardy or nearly so, that flower in the open during spring or summer, are termed "forced" when they are brought by means of heat into earlier flower. As forced plants are usually started in autumn, to flower in winter they only require attention over a few months, as against those plants that require nearly a year of the grower's attention to bring to flower. Thus they are very popular.

BULBS AND OTHER HERBACEOUS PLANTS

Smaller bulbs should be set in the pots or pans so thickly that they touch. The depth is important; the top of the bulb should just be covered. The soil should be clean to work with, neither wet or dry. There is no necessity to ram the soil with sticks, neat finger work is alone required.

It is well to place the pots of bulbs on a piece of level ground and cover with 6 inches of coal ashes. Let them alone for a month; the soil being in the right state when potting, they will require no watering. After this the pots should be taken from the ashes and placed in cold frames, or well exposed to light on a greenhouse bench. From this they go as required into a moist house, with a temperature of 50 to 60 degrees, preferably plunging the pots in leaf mould and cocoanut fibre, which keeps the air moist. It is advantageous to have bottom heat. Excessive temperatures of 85 to 90 degrees are unneeded, unless the bulbs have

been obtained too late in the season for securing good results by slow and surer ways.

When expanded, the flowers of forced bulbs and other plants remain longer in perfection if kept in a temperature of 50 to 55 degrees, and they may be put to any use, arranged in moss with other flowers, the soil being shaken off the roots, etc. etc.

Many forced bulbs require neat stakes.

When large quantities of cut flowers are required, it is best to plant the bulbs thickly together in boxes, say, $18 \times 12 \times 4$ inches in size.

The principal advantages gained by the use of refrigerated plants is that flowers are procurable when otherwise they could not possibly be so, require less heat to produce, are much quicker in growth, start away at once, and flower simultaneously.

Retarded plants should be ordered to arrive on the day they are wished for potting, and this will occur every fortnight if a large and extended display is required. When unpacked, give them a thorough soaking of water, and if it is not possible to pot at once, lay in a damp, cool, dark place, and cover over with a mat.

The following are the principal plants used for winter forcing. When retarded material is useful, it is so stated.

ROMAN HYACINTHS

A batch of the bulbs should be potted every three weeks from August to November, placing three large bulbs in a 4-inch pot. Those potted in August flower in November, and so on. If the bulbs tend to flower too early, keep the plants in a cool greenhouse near the glass. If kept cool they last a month in flower. Similar but later are the pretty French, with straw-coloured flowers, and the pink and white Italian hyacinth. These

latter have been persistently run down for years, even by those who catalogue them. They by no means deserve this—indeed are good, although the flowers are in looser trusses than are the Roman.

VALLEY LILIES

For flowers during December and January procure retarded crowns ; pot 18 crowns to a 6-inch pot, working in the soil well with the fingers, and leaving $\frac{1}{4}$ inch of the crowns above the surface. Place in a heavily-shaded position, say, beneath a greenhouse bench, and in a temperature of about 50 degrees. Some inches of growth will be made in a fortnight, when the shading may be gradually reduced, the heat increased to 55 to 60 degrees, which is high enough, but in no case should sunshine touch the plants, as light foliage is preferred to a darker green. Under this treatment winter lilies will flower in three or four weeks after leaving the refrigerator, so that the proper potting time may be nicely calculated. Plants for Christmas week should be started on November 20th, as they last some time expanded.

For late February and March use, the Dutch clumps, single crowns, or even home garden grown lilies will give excellent results. As, however, the foliage is behind, the pots, after the flowers are cut, should not be thrown away, but should be shaded to develop leaves, which may be cut to embellish the next batch of flowers. When lifting lily crowns from the garden for forcing, only the flowering buds—easily distinguished by their plumpness—should be chosen. Cover the potted plants with a couple of inches of leaf soil, fibre or moss, and place in a warm moist house or case with a bottom heat of 80 to 85 degrees or so, and a top heat of 75 degrees, where they will flower in four or five weeks. The flowers must be drawn up a bit by shade and moisture ;

if they incline to dwarfness cover each with an inverted pot. Valley lilies unretarded and forced in autumn often become "blind," hence the great value of retarded material.

TULIPS

are ever bright and useful, although the Duc Van Thols of early forcing-houses are dumpy and poor compared with the stately graces of May-day Beauty.

A favourable point is their general lack of fragrance, thus they may be used where heavy scents tire one. In September procure the bulbs, and pot those of the variously coloured Duc Van Thol section required for December flowering. After their removal from the plunging material, 50 to 65 degrees suits well; they are best standing on a shelf near the glass and light. Besides the Thol section, there are many other fine kinds which may be had early in flower. Their names occur in catalogues.

NARCISSUS

These require tulip treatment, and should be kept in a cool house, and brought on in warmth as required. Those mostly used for the earliest work are Paper White, Double Roman, Early Snowflake, these being varieties of the polyanthus or bunch-flowered *Narcissus Tazetta*. Many fine trumpets may also be used, and the quaint hoop petticoats should not be forgotten.

DUTCH HYACINTHS

The different varieties vary somewhat in the size of their bulb. They do not readily force so early as do the smaller Roman variety. After potting them in September, it is a good plan to plunge them in ashes in a south frame, if one can be spared. This gives every

chance of securing early trusses, but those brought on for flowering ere the turn of the year sometimes "go blind." Sometimes the leaves extend but the flower does not. Shortening the former, and placing an inverted pot over the latter, may do good. Narcissi treatment suits. The flowers often require neat stakes. The bulbs are much better massed in shallow pans. Two colours look well together, dark blue and yellow, or crimson and white, for instance, and good dealers could supply varieties that will come into flower together.

JAPANESE LILIES

Lilium longiflorum, *L. auratum*, and *L. speciosum*, etc., may be had in retarded bulbs, which are quite necessary if winter lilies must be had. The two former should be potted during the first weeks of September, the latter in the first week of August, for Christmas and New Year flowers. Keep the tops of bulbs 2 inches below the soil, and place three bulbs in a 7-inch or larger pot, according to their size. After removing from the plunging material, place in an airy house, with a temperature of 55 to 65 degrees. Good winter lilies cannot be had in the dim lower regions of overcrowded hothouses. Black fly may cause trouble; it must be checked by frequent mild fumigations, or by dipping the plants in soap and water. When the pots are filled with roots, give weekly doses of very weak fertilisers. Stake the shoots.

"SPIRAEA"

(*Astilbe japonica*) is at its best in this country when forced. Retarded plants should be used for flowers at and before the New Year. Pot the clumps up entire and treat as valley lilies, but remove after a week's shading into more and more light, and keeping a

temperature of 55 to 60 degrees. For Christmas use pot up during the second week of October, and for other dates at relative times. For flowers in February and after, ordinary clumps may be used. Insufficient moisture in soil or air will surely result in failure. It is a good plan to stand the pots in saucers of water. There are several varieties of the Astilbe. *Spiraea palmata*, *S. Ulmaria aurea* (yellow leaved), and *Rodgersia podophylla*, a very fine Japanese foliage plant, flourish under the same treatment as afforded the *Astilbe*, but retarded clumps are not usually obtainable.

CROCUSES AND SNOWDROPS

The Dutch crocuses are not satisfactory when rushed. The stalks are weak, and the flowers frequently fail to expand properly. There are gems among the species that flower naturally during winter in a cold house; such are enumerated on another page. For greenhouse work the larger varieties may be gently forwarded.

The best snowdrops for early work are the larger species, such as Elwes's; these will flower in December and January if given a temperature of 50 to 55 degrees.

LYRE FLOWERS

(*Dicentra spectabilis*) should be potted early in November for January flower, and successive batches potted up to early March. The roots before potting should be kept in damped earth. Five strong pieces go into an 8-inch pot. A valuable decorative plant with fern-like foliage and pendant flowers. It is often called Dielytra. There is a white flowered variety. A smaller species, *D. eximia*, may also be used.

SOLOMON'S SEAL

Mounted singly with wire, the blossoms give charm and hawthorn fragrance to bouquets. The shoots cut at soil level are very handsome in vases, while the plants are very suitable for room decoration. Place the fleshy roots (rhizomes) thickly and horizontally in pans or boxes, covering them with 1 inch of soil. Pans 12 inches across will hold enough to make good specimens.

FREEZIAS

are deliciously perfumed. For December flowers pot in July, placing 9 strong bulbs in a 5-inch pot an inch deep. Plunge in ashes, covering the plunging bed with a sash to give off heavy rains. Remove in a month to a cool greenhouse, where they remain, close to the glass, in a light place, until the flower spikes show. Stake those required, and remove those required for early flowers into a temperature of 55 to 60 degrees. The remainder may stop until removed as successive batches a few weeks later. With much heat, or insufficient light, the stems become very lanky. When the foliage yellows after flowering, keep dry until the following August, when they should be shaken out of the old soil and potted in fresh, and plunged. All the young bulbs should be grown on separately, as they will flower the succeeding year. From seed, freezias flower well in the second year. *F. refracta* has white flowers with an orange throat, *F. Leichtlinii* is pale yellow.

TUBEROSES

Tuberoses are grown chiefly for the value of detached blossoms, which on account of their perfume are very serviceable for bouquets, etc. The flowers are produced

on long spikes, and are not particularly beautiful as pot plants. If the spikes run against the glass, they may be bent over and tied down. The bulbs of the tall African are obtainable in September, those of the dwarf Pearl in December. For January flowers procure the former as soon as possible, pot, and plunge, removing in a few weeks to a moist temperature of 65 to 70 degrees, in which they flower well. Tuberose have not the grace of daffodils and valley lilies, or Roman hyacinths, but are good substitutes for gardenias or *Stephanotis*. The name is tu-ber-ose, not tube-rose.

MUSK

This delightful little plant, that carpets the ground beneath North American forests, should always be represented in the winter greenhouse. Batches should be potted every few weeks from October onwards, and with a moist heat soon come away.

SHRUBS

Shrubs, for forcing, should be well "set" with flower buds. These are readily distinguished from the mere leaf buds by their greater plumpness.

Several retarded shrubs are obtainable. Among them, *Azalea mollis*. Treat as retarded bulbs, but give light after the buds swell. It comes in flower some six weeks after potting and remains several weeks in beauty.

Large plants of lilacs grown for cut flowers may be taken up from the open ground and placed in a moist temperature of 60 to 70 degrees, syringing freely, and covering the roots with warm leaves. Start in the middle of October for flowers at Christmas week. The flowers of coloured varieties become much paler in such forced plants—often white, in fact. Although when

pure white flowers from coloured varieties are especially wished, it is better to grow in a cellar with fermented leaves or in a shaded hothouse.

Small plants in pots, of the under-mentioned shrubs, are best when grown in a temperature of 60 to 75 degrees, the lower figure the better, unless the earliest results are required. After flowering, forced shrubs should be removed to a cooler temperature, and finally plunged in the open ground or planted out in the garden. If well treated they may be fitted for forcing the next year, but often the number of flower buds will be lacking, when fresh plants should be obtained.

Deutzia gracilis, white flowered, a shrub more beautiful for forcing than in open air gardening, forces well year after year if the plants are repotted when required, and worn-out flowering shoots cut out.

SELECTIONS

The following ("garden" names given) are suitable subjects:—*Acer Negundo variegata* (white leaved); *Amygdalus persica* fl. pleno, crimson, rose, white, magnifica (double flowered peaches); *Azalea altaclarensis* (orange); Ghent varieties, *A. indica* (of this, the Indian azalea, *Deutsche Perle*, white flowered, is good), *A. mollis* (orange yellow and salmon shades), *A. pontica* (the old yellow); *amoena* (carmine); *rustica* fl. pl.; *Cerasus pseudo-Cerasus*, *C. Sieboldii*; *Clethra alnifolia*; *Deutzia gracilis*, *D. Lemoinei*, *D. scabra* flore pleno; *Diervilla Eva Rathke*; *Forsythia suspensa*; *Hydrangea paniculata*; *Kalmia glauca*; *Kalmia latifolia*; *Laurustinus*. Lilacs, good varieties, of which are—*Casimir Perrier*, double white; *Charles X.*, deep purplish lilac; *Madame Lemoine*, double white; *Marie Legrange*, pure white; *Souvenir de Spath*, purplish red, and the Persian; *Paeonia Moutan*; *Philadelphus Boule d'Argent* ("Syringa"); *Pieris*

floribunda, *P. japonica*; *Prunus sinensis* flore plena, and flore plena rosea, *P. triloba*; *Pyrus Malus floribunda* flor. atrosanguinea, *P. Pissardi*. *Rhododendron*—Early Gem, Cunningham White and *praecox*; *Rhodora canadensis*; *Ribes sanguinea*, and varieties. Roses. *Spiraeas* (shrubby). Thorns—double, pink, and crimson (Mays). *Viburnum Opulus*, and *plicatum* (guelder roses).

WINTER ROSES

The elite of summer flowering shrubs possess little in the way of leaf or flower during winter, though a few, such as *Reine Olga de Wurtemberg*, etc., seem loth to part with leaves. In favoured districts quite a varied display may hold on to the New Year, but in most gardens the stray flower of a Monthly or Stansfield Perpetual, etc., and a few naked lusty hips on the Penzance Sweetbriars are all that is there to suggest former beauty.

Some one has murmured—

“ At Christmas I no more desire a rose
Than wish a snow in May’s new fangled showers,
But like of each thing that in season grows.”

but certainly not all.

For roses at Christmas, outdoor plants cannot be relied on at all. Lift dwarfs, either on or off their own roots, from the rosebeds in September, with as much soil as they will carry, and put them into 8-inch or larger pots, using loam, well enriched with decayed manure. The firmer the shoots are the better; the best are usually those in sunny positions. The leaves will probably fall off, which is quite the right thing, and to encourage ripe shoots the potted plants should be placed in the full sun, giving water when necessary. Ten weeks before the flowers are wanted, keep the plants

rather drier and cut the current year's shoots to within four buds of the older stems, and place the plants in a temperature of 50 to 55 degrees, removing when the buds break to one 60 degrees night and 70 degrees day and avoiding a stronger heat, which only produces limp-like shoots. Roses require a damp atmosphere; this is best secured by spreading decaying leaves or cocoanut fibre to the thickness of 10 inches and plunging the pots therein. The foliage may be dewed over up to the time the buds show colour. The early roses can go in the winter tomato-house, the late into the early vinery or other warm house. The late roses are treated in the same way, the pots should be covered with litter, or plants sheltered by a frame, until they are introduced into heat.

After flowering, harden off, and plunge the pots in April, choosing a sunny position. These pot plants, if liberally fed during the first part of the summer, will be suitable for forcing again in the autumn.

Favourite varieties such as Niphetos, General Jacqueminot, Wm. Allen Richardson, Reine d'Or, Caroline Kuster, Prince de Bulgarie, Homer, and Sunrise, will be represented in most selections.

The fairy roses, popular nowadays, and very free flowerers, are charming miniature polyantha roses. A lesser heat is more suitable for these. With rich loamy soil, and 5-inch pots, good batches can be had. Sow seed in February, and pinch off flower buds that appear in summer, keeping the plants in a sunny frame or plunged in open.

A few sweet briars should be forced for their pleasantly scented shoots.

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